

**An Evaluation of Societal Implications of
Environmental Education
*through the Integration of Indigenous and Westernized Practices
in the Piedmont Region of North Carolina***

by

Eric L. McDuffie

Dr. Rebecca Vidra, Advisor

May 2014

Masters project submitted in partial fulfillment of the
requirements for the Master of Environmental Management degree in
the Nicholas School of the Environment of
Duke University

2014

Acknowledgements

I am so thankful to a multitude of people in my wonderful home state of North Carolina who made it possible for me to complete this Masters Project. To the tribal elders of the Occaneechi Band of Saponi Nation and Sappony Tribe, I am deeply indebted for the gracious hospitality and incredible wealth of wisdom given to me through your spoken words. I also thank all of the environmental educators from the mountains to the coast who participated in the statewide survey and especially to the three environmental educators I interviewed. Their insight was invaluable in developing my project. I am also thankful to the NC Office of Environmental Education leadership for giving me permission to use their database of Environmental Education organizations to send out my survey. I also give an enormous amount of gratitude to a particular environmental educator in Durham, NC. It was there I spent the most time learning from her during this study. The Project would have never gotten off the ground without her creative ideas and wealth of knowledge that inspired me to keep going forward. Sarah, I am deeply grateful to you for this experience. I now thank Dr. Rebecca Vidra, my Master's Project Advisor. She always supported my vision and kept me grounded to always scale down the Project to a working entity. Her wealth of knowledge in all facets of this Project was so gratefully appreciated. I also thank all of my instructors and classmates in the DEL-MEM Program for teaching me their incredible professional practices and opening my eyes to the beautiful world in front of me. And finally, to my incredible wife and family for their tireless support over the last two years for putting up with my craziness through this most challenging Program. I could never have completed this Program without your undying support and understanding. I love you all so much! Yeah, now we can see each other again!

Abstract

Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized programs and systems. The knowledge from indigenous cultures offers many valuable practices that could be integrated into Westernized environmental education as generations search to improve sustainable and regenerative practices. This qualitative study examines existing environmental education organizations across North Carolina, along with two indigenous cultures native to the Piedmont region of North Carolina, in order to make recommendations for an environmental education framework integrating the methods of indigenous knowledge. Through thematic analysis of survey responses and interviews, best practices for developing an integrated program and the benefits these types of programs bring to a community are identified. To effectively develop a program connecting indigenous knowledge and Westernized environmental education, the curriculum should be focused locally using delivery methods such as story-telling, role-playing and symbolism. But public education cannot change children's connection to their environment alone. The parents and the elders of our families and communities are an integral part of reconnecting children to nature.

Table of Contents

| | |
|--|-----|
| Acknowledgements..... | ii |
| Abstract..... | iii |
| Introduction | 5 |
| Problem Definition | 5 |
| Research Question, Goals and Objectives | 8 |
| Background | 9 |
| History of Indigenous Cultures of North Carolina | 9 |
| American Indian Education Model | 11 |
| History of Environmental Education in North Carolina | 12 |
| Westernized Environmental Education Model..... | 14 |
| Methodology..... | 15 |
| Definition of Scope | 15 |
| IRB Process | 17 |
| Data Collection and Analysis..... | 18 |
| Results and Observations | 22 |
| EE Organizations Survey Responses | 22 |
| Interview Narrative Analysis..... | 29 |
| Discussion and Conclusions | 36 |
| Description of Existing EE Centers with Integrated Programs..... | 36 |
| Benefits of Integrated Programs to a Community..... | 39 |
| Recommended Best Practices to Develop an Integrated EE Program | 40 |
| Training Program for Elders Mentoring Other Adults | 41 |
| Conclusion | 43 |

| | |
|--|-----|
| Appendices..... | 49 |
| Appendix A: Informed Consent Forms for Survey and Interview Participants..... | 49 |
| Appendix B: Survey Questionnaire (with response summary)..... | 53 |
| Appendix C: Interview Questions for Experts from Indigenous Cultures and Westernized Environmental Education..... | 57 |
| Appendix D: Transcript for Interview with Interviewee #1 | 59 |
| Appendix E: Transcript for Interview with Interviewee #2..... | 86 |
| Appendix F: Transcript for Interview with Interviewee #3..... | 93 |
| Appendix G: Transcript for Interview with Interviewee #4 | 103 |
| Appendix H: Transcript for Interview with Interviewee #5 | 114 |
| Appendix I: Transcript for Interview with Interviewee #6..... | 122 |
| Appendix J: WING Program Strategic Plan - Short Version | 130 |

Table of Figures

| | |
|--|----|
| <i>Figure 1 - American Indian Tribes of North Carolina</i> | 10 |
| <i>Figure 2 - American Indian Education Model.....</i> | 11 |
| <i>Figure 3 - Timeline for Environmental Education.....</i> | 13 |
| <i>Figure 4 - Environmental Education Model</i> | 14 |
| <i>Figure 5 - Concept Map of Literature</i> | 16 |
| <i>Figure 6 - Research Methodological Hierarchy</i> | 18 |

Introduction

Problem Definition

According to The World Commission on Environment and Development (1987), our world is in an “environmental crisis” (p.4). Non-renewable resources are running out and renewable resources are being used at a rate faster than they can regenerate themselves (Jowsey, 2009). Land is being over developed due to exponential population growth (Meadows et al., 2004). Waterways are being polluted (Lalzar, 2007). Species are going extinct at an alarming rate (IUCN, 2009; WWF 2011). In Limits to Growth – The 30-Year Update, Meadows et al. (2004) outline the past 10,000 years human-driven society as progressing through two revolutions, first, the Agriculture revolution, then into the Industrial revolution. The authors now call for a third revolution to unfold, the “Sustainability Revolution” (p.269). The time has come for society to make our world a more sustainable place to live.

Some of the most important people to influence a long-term change are children (Chawla, 2006; Charles et al., 2009). The environment did not go into crisis in one generation; therefore, it will take the next several generations to implement solutions to regain a state of sustainability. Studies reviewed by Louise Chawla (2006) for her report “Learning to Love the Natural World Enough to Protect It” indicate adults who are conscientious about environmental issues practiced and played in nature as children.

Therefore, for today’s children to affect regeneration of our planet, they must appreciate and connect to nature. To do this, they need to go outside and experience nature.

Unfortunately, children today are also in a crisis. In Last Child in the Woods – Saving Our Children from Nature-Deficit Disorder, Louv (2005) coined the phrase “Nature-Deficit Disorder”

(p.34). Children do not go outside and play as much as past generations and therefore have become afraid of being in nature. As a result, they do not see nature as an integral part of their community. Formal public education is focused on curriculum standards and test scores. Natural play as a form of learning has been abandoned for sitting in a classroom with technology. Parents do not encourage unstructured discovery outside as play for fears of children getting hurt. As a result, this young generation does not appreciate nature so they are not as motivated to sustain it (Dickinson, 2013).

Fortunately, there are still groups of people in North America that do appreciate nature and live connected to it. Indigenous cultures serve as one good example of society's communities who often sustain and protect ecosystems through wise resource management (Nee-Benham, 2000). In 1992, the International Institute for Sustainable Development (IISD) published a report Our Responsibility to the Seventh Generation to draw attention to the value of indigenous knowledge (IK) and how it can contribute to sustainable development. In this report, the authors explain that indigenous cultures think ahead seven generations, approximately 120 years, when making regenerative decisions about the environment or the use of resources. It is the belief of indigenous cultures that:

"We cannot simply think of our survival; each new generation is responsible to ensure the survival of the seventh generation. The prophecy given to us, tells us that what we do today will affect the seventh generation and because of this we must bear in mind our responsibility to them today and always" (IISD 2000).

Indigenous knowledge has been historically under-represented in Westernized programs and systems (Nee-Benham, 2000; Dickinson, 2013). Prior to the 1980s, indigenous knowledge was not a factor considered by the United Nations or international environmental organizations

developing conservation management programs. In the Earth Summit of 1992 sponsored by the United Nations, Shava (2013) reports:

“Indigenous peoples and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development (UNCED, 1992a)”.

Shava (2013) also reports, that on September 7, 2007 the United Nations General Assembly recognized the “respect for indigenous knowledge, cultures and traditional practices contribute to sustainable and equitable development and proper management of the environment” (p. 385). Gradually, the value of indigenous knowledge is being integrated in government activities, but, it still remains largely unrepresented in environmental education (EE).

The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Indigenous knowledge is not a set of educational standards, but a way of life based on intimate connections to the land through spiritual and cultural practices. The Alaska Native Science Commission (2006), an organization of American Indians who promote the integration of traditional knowledge with scientific knowledge, defines indigenous knowledge as the following:

- *Practical common sense based on teachings and experiences passed on from elders to children.*
- *Knowing the country. It covers knowledge of the environment - snow, ice, weather, resources - and the relationships between things.*

- *Holistic. It cannot be compartmentalized and cannot be separated from the people who hold it. It is rooted in the spiritual health, culture and language of the people. It is a way of life.*
- *An authority system. It sets out the rules governing the use of resources - respect, an obligation to share. It is dynamic, cumulative and stable. It is truth.*
- *Traditional knowledge is a way of life - wisdom is using traditional knowledge in good ways. It is using the heart and the head together. It comes from the spirit in order to survive.*
- *It gives credibility to the people.*

Research Question, Goals and Objectives

The integration of indigenous knowledge with Westernized environmental education is a growing practice, but, due to its relative newness, very few studies have been conducted on the effectiveness of these programs (Lowan-Trudeau, 2013; Shava, 2013). This study is designed to investigate the question: *How can the integration of indigenous knowledge with Westernized environmental education practices benefit a community in the Piedmont region of North Carolina?*

This study examines existing environmental education organizations across North Carolina, along with two indigenous cultures native to the Piedmont region of North Carolina, in order to make recommendations for an environmental education framework integrating the methods of indigenous knowledge. The objectives are to:

1. Identify and describe existing environmental education programs in North Carolina that integrate indigenous knowledge with Westernized practices.
2. Propose the potential benefits these environmental education programs bring to a community.

3. Recommend Best Practices for an environmental education curriculum integrated with methods of indigenous knowledge.
4. Develop a training program where community elders mentor other adults within the environmental education framework of an organization within the Piedmont region of North Carolina.

Background

History of Indigenous Cultures of North Carolina

American Indians have lived in North Carolina for at least 11,000 years with some evidence dating their inhabitation as far back as 19,000 years (Walbert, 2009). In contrast, settlers from other regions only arrived in North Carolina a few hundred years ago (Walbert, 2009). The cultures of these indigenous people represent a large piece of North Carolina's history. But this culture does not only exist in the history books, it also exists in communities today. The 2000 census showed nearly 100,000 American Indians living in North Carolina (Walbert, 2009). This population represented the largest in any state East of the Mississippi River. By the 2010 census, North Carolina's population of American Indians grew by 40% (US Census Bureau, 2012). This could be a result of more tribes receiving official recognition by the state, such as the Occaneechi-Saponi tribe in 2004. A member of The Occaneechi Band of the Saponi Nation tribe remarked in an interview for this study, "When I became an Indian in 2004" (personal communication, January 16, 2014). Ironically, they had been an Indian since birth along with their ancestors.

North Carolina currently recognizes eight American Indian tribes across the state

(See Figure 1 for Map):

1. Cherokee
2. Coharie
3. Haliwa-Saponi
4. Lumbee
5. Meherrin
6. Occaneechi Band of the Saponi Nation
7. Sappony
8. Waccamaw Siouan

Geography of the state separated

tribes; therefore, historically interaction

between certain tribes did not occur. Additionally, the North Carolina tribes developed from larger tribes across the country so traditions and languages differ. For example, the Cherokee tribe in Western North Carolina and the Meherrin tribe in Eastern North Carolina both speak a language derived from the Iroquoian language (LearnNC, 2009). In the Coastal region, the Waccamaw and Lumbee tribes speak with a dialect from Siouan ancestors while the nearby Coharie tribe developed language from the Neusiok Indians (LearnNC, 2009). As a result, the Waccamaw and Lumbee tribes could interact and communicate about culture and traditions, but the Coharie tribe would remain independent even though geographically these tribes were closely located. The three tribes around the Piedmont region of North Carolina shared geography as well as a common language. The Haliwa-Saponi, the Occaneechi Band of the Saponi Nation and the Sappony tribes are all Sioux-speaking tribes, therefore interaction and sharing between these communities began historically and continues today. (LearnNC, 2009).

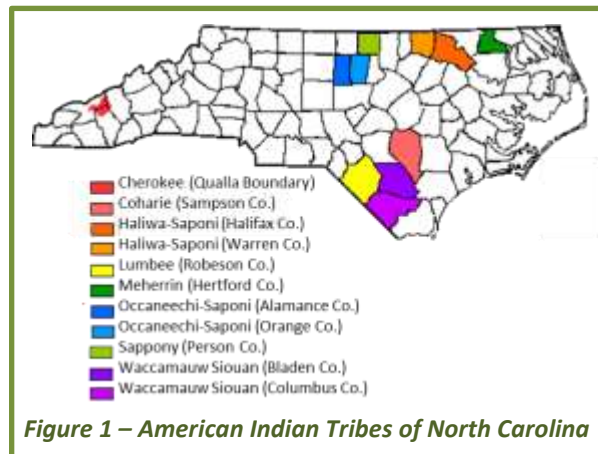


Image developed from <http://www.rootsweb.ancestry.com/~ncqualla/native.htm>

American Indian Education Model

Education for many American Indians, including some in North Carolina, is not a six-hour, five day a week experience in a classroom, but a daily interaction with their community and nature to learn the cultures and traditions of a way of life. Children are surrounded and taught by a variety of family and community members, from both inside and outside the tribe, in order to connect the past and the future (See Figure 2 for the Educational Model). The holistic model guiding the education of the children focuses on four grounding principles (Nee-Benham, 2000):

1. Native spiritual wisdom which is guided by the hearts of our grandmothers and grandfathers.
2. Critical development of the intellect which intersects Native ways of seeing and doing with modern ways of seeing and doing.
3. Promotion of a healthy body and healthy environment.
4. Preservation and revitalization of Native languages, arts, and traditions.

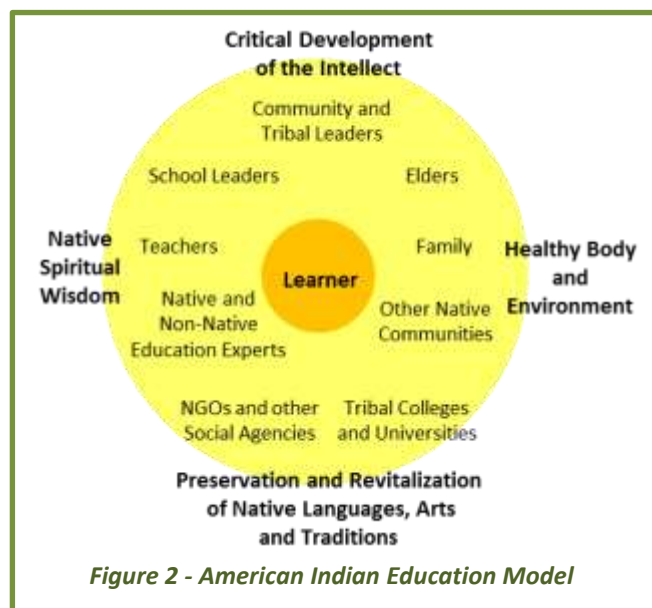


Image recreated from *Indigenous Educational Models for Contemporary Practice* (pg. 16)

For some lessons, the women of the tribe work with the female children teaching them to prepare the food, keep the home, and care for the younger children. In contrast, the men of the tribe work with the male children by taking them on hunting trips, bringing them out to help graze the animals, working the garden, or going on a trading expedition. These experiences bring the learners in contact with a wider environment that include new people and new ways

(Marashio, 1982). The understanding of when to teach a child a skill probably occurs because of the intimate relationship of the teacher and learner (Marashio, 1982).

In this American Indian education model, teachers utilize a combination of many techniques to ensure the learner receive a holistic education including; questioning, stories, songs, dances, plays, ceremonies, visions, symbolism, impersonating the spirits, playing and mimicking, and observation (Marashio, 1982). The combination of pedagogy provides American Indian learners with daily learning through “an inter-disciplinary approach about life, art, music, ethics, laws, hunting, culture, farming and self” (Marashio, 1982). From these combined educational experiences, American Indians learn about their interrelationship with nature, consequently, understanding their role in the natural scheme.

History of Environmental Education in North Carolina

According to the Environmental Protection Agency (2013), environmental education is “a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions” (EPA, 2013). The agency defines the components of environmental education as:

- *Awareness and sensitivity to the environment and environmental challenges*
- *Knowledge and understanding of the environment and environmental challenges*
- *Attitudes of concern for the environment and motivation to improve or maintain environmental quality*
- *Skills to identify and help resolve environmental challenges*
- *Participation in activities that lead to the resolution of environmental challenges (EPA, 2013)*

Environmental education is not a new topic in the United States (See Figure 3 for Timeline). Focus began over 40 years ago when Congress passed the National Environmental Policy Act in 1969. The National Environmental Education Act quickly followed in 1970 that encouraged environmental education in every kindergarten to twelfth grade classroom. Since implementation of this act was left to each state, North Carolina formed an Environmental Education Task Force in 1971 and passed the Environmental Education Act of 1973 with the goal to “encourage, promote and support the development of programs, facilities and materials for environmental education in North Carolina” (NCEE, 2007). But state funding was in short supply to achieve this goal and the process slowed until 1989 when the Secretary of the North

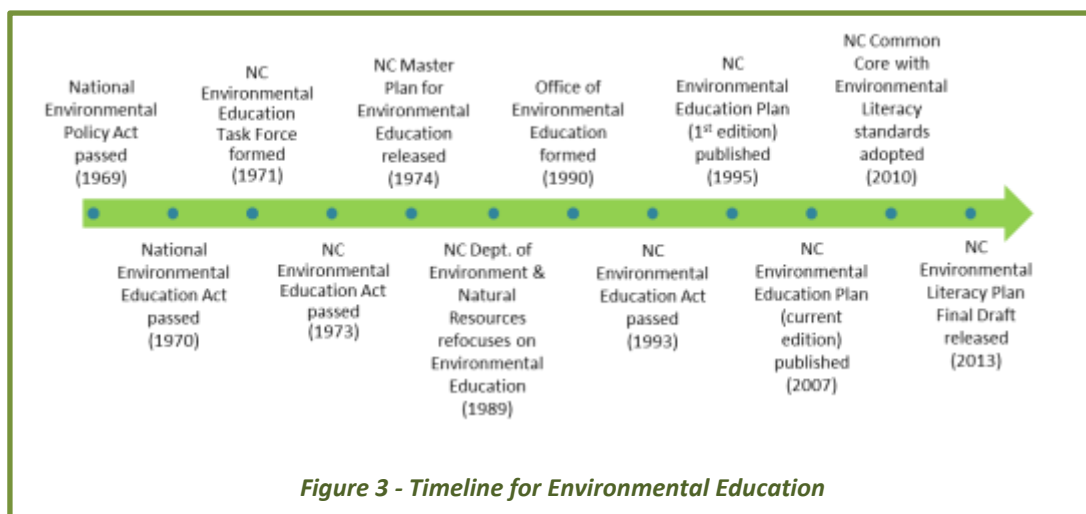


Image created from “The History of Environmental Education in NC” in *The NC Environmental Education Plan* (pp 8-9)

Carolina Department of Environment and Natural Resources made environmental education a top priority again. In an effort to assist educators across North Carolina, the Office of Environmental Education formed in 1990 and the North Carolina Environmental Education Act passed in 1993, with the goal to publish a North Carolina Environmental Education Plan to assist environmental education in all grade level classrooms, as well as in informal settings, for both children and adults alike. Several states passed similar legislation, but North Carolina was one

of only a few states to establish and fund an office dedicated to environmental education (NCEE, 2007).

Westernized Environmental Education Model

The mission of the N.C. Office of Environmental Education is to

“Encourage, support and promote environmental education programs, facilities and resources in North Carolina for the purpose of improving the public’s environmental literacy and stewardship of natural resources through planning, policy development, community involvement, innovative partnerships and collaboration.” (NCEE, 2007)

Two major publications published by this organization define the model by which environmental education is taught in North Carolina (See Figure 4 for the Educational Model).

The North Carolina Environmental Education Plan was first published in 1995 and the current edition being used today was published in 2007. Additionally, in 2010, North Carolina adopted the Common Core Essential Standards curriculum that incorporates Environmental Literacy standards in Science and Social

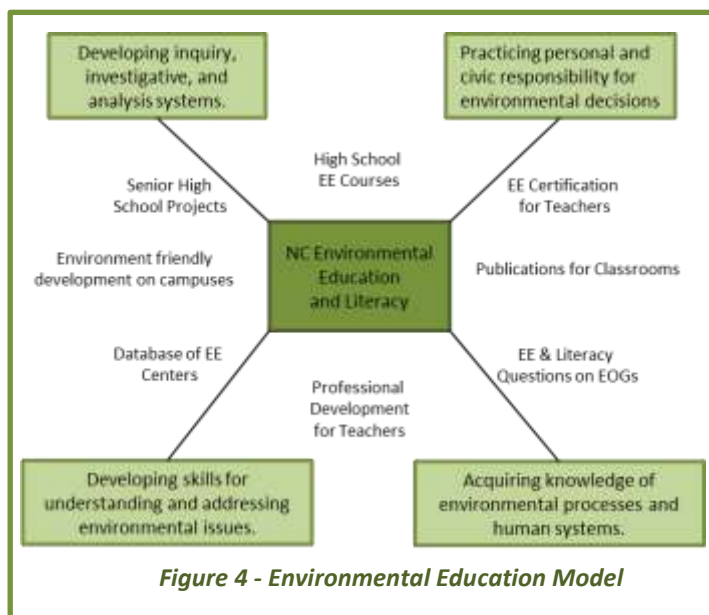


Figure 4 - Environmental Education Model

Image created from interpretation of information in *The North Carolina Environmental Education Plan* and *The North Carolina Literacy Plan*

Studies. This is the first time in North Carolina the standard course of study across all grades addresses any type of environmental education. These adoptions lead to the development of the North Carolina Environmental Education Literacy Plan that was drafted in 2013. The goal of

the plan in support of the Common Core Essential Standards is to “prepare students for college and the workplace, fully equipped to succeed in the 21st century global, high-skilled, innovation economy” (NCDENR and NCDPI, 2013).

The central focus of North Carolina’s Environmental Education model is the standard for environmental literacy. According to the North Carolina Environmental Literacy Plan published by the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Public Instruction (2013), a student’s successful mastery of this standard is assessed against the four essential components of environmental literacy:

1. Developing inquiry, investigative, and analysis systems.
2. Acquiring knowledge of environmental processes and human systems.
3. Developing skills for understanding and addressing environmental issues.
4. Practicing personal and civic responsibility for environmental decisions.

Between the standard and the final goals is found methods and tools to assist in achieving and measuring the implementation of the knowledge. In the Environmental Education model, a student would typically only stay with an instructor for a single school year, so very little customization might occur. Success is measured by tests, assessments, projects and classroom performance.

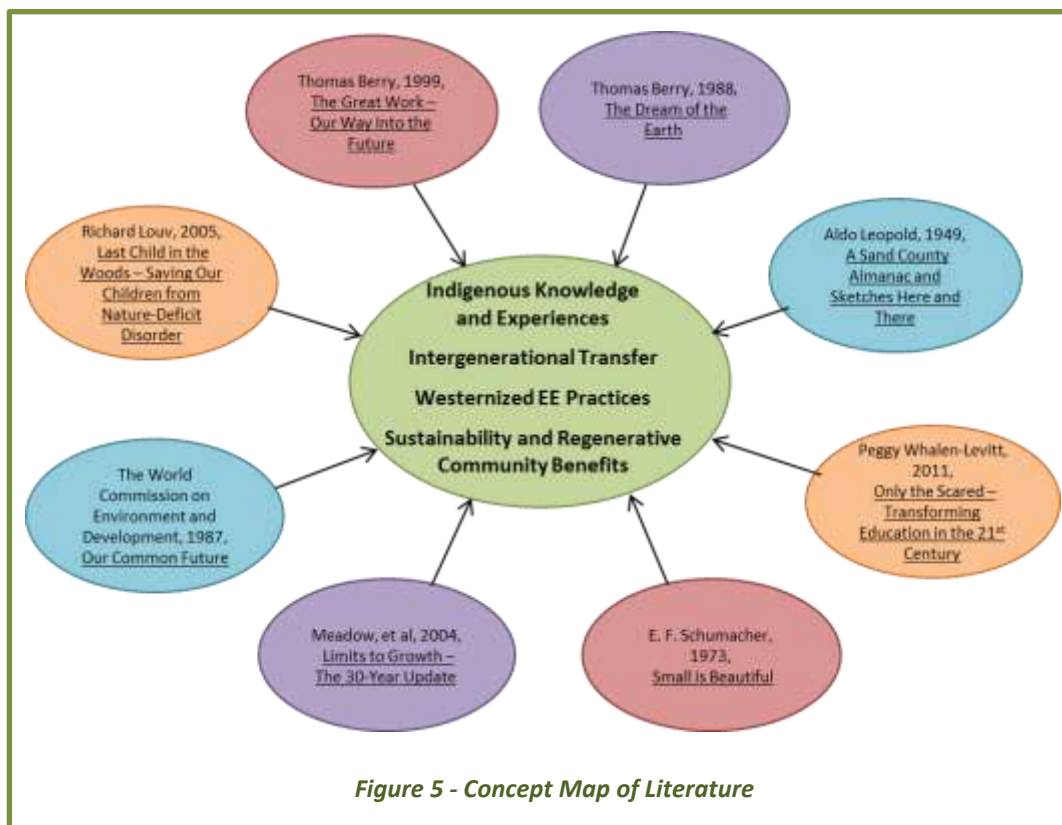
Methodology

Definition of Scope

The underlying opportunity and idea for this study originated from my passion for Environmental Education. This passion resulted in the study of the literary works of great environmental authors such as Aldo Leopold, Thomas Berry, and Richard Louv. Further

inspiration came from books by The World Commission on Environment and Development, Peggy Whalen-Levitt, Donella Meadows, Jorgen Randers and Dennis Meadows as well as E. F. Schumacher (See Figure 5 for Concept Map). The framework for this study developed from several concepts found in this literature including:

- indigenous knowledge and experiences
- intergenerational transfer of information
- Indigenous practices incorporated into Westernized environmental education
- sustainable and/or regenerative benefits to a community



Further definition of the scope of this study resulted from a literature review of journal articles. The article “Evaluating the Effects of Environmental Education Programming on Connectedness to Nature” by Julie Ernst and Stefan Theimer from 2011 reports on a study

aimed to evaluate the effectiveness of seven Environmental Education programs to connect participants to nature. Results were limited due to the small scale and further research was recommended. The article “The Misdiagnosis: Rethinking ‘Nature-Deficit Disorder’” by Elizabeth Dickinson in 2013 reports on a study developed around Richard Louv’s “nature-deficit disorder” diagnosis. Her results referenced the need to connect adults and elders to the children. The author goes further to say indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized programs. Two articles in the International Handbook of Research on Environmental Education reported the integration of indigenous knowledge with Westernized environmental education is a growing practice, but, due to its relative newness, very few studies have been conducted on the effectiveness of these programs (Lowan-Trudeau, 2013; Shava, 2013).

As a result of these literature reviews, the underlying concepts of environmental education, indigenous knowledge, and the effectiveness of programs to provide benefits to a community were used to develop the research question for the study. The question under investigation is how can the integration of indigenous knowledge with Westernized environmental education practices benefit a community in the Piedmont region of North Carolina?

IRB Process

Since this study requires the collection of people’s thoughts and opinions about the current state of our environment as well as their beliefs on the benefits to a community from integrating indigenous knowledge with Westernized environmental education practices, approval to conduct human subjects research was required (DEL-MEM, 2014). An exemption from ongoing review of the data was granted to collect information via an electronic survey as

well as formal and/or informal interviews. See Appendix A for the informed consent forms for survey and interview participants. In order for participants to respond openly and honestly, anonymity in the final research paper was ensured. In the electronic surveys, participant names were not collected, but some identifiable information such as the name and location of the environmental education organization was asked. This data was used to analyze if indigenous practices are incorporated more in geographic areas with a larger indigenous population and to identify responses from the Piedmont region of North Carolina for the scope of the project. No identifiable information about the organization or the respondent was included in the paper. In the interviews, the name and some identifying background information of the subject was collected upon consent prior to recording, however, based on IRB protocol all identities remain anonymous in the research paper.

Data Collection and Analysis

This qualitative study examines existing environmental education organizations across North Carolina along with two indigenous cultures native to the Piedmont region of North Carolina in order to make recommendations for an environmental education framework

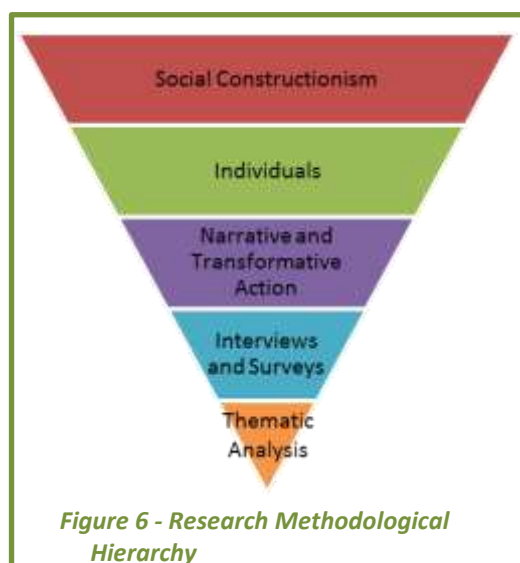


Image created from *Qualitative Research-The Essential Guide to Theory and Practice* (p 45)

integrating the methods of indigenous knowledge (See Figure 6 for Methodological Hierarchy) (Savin-Baden and Major, 2013). The research paradigm used for this study is Social Constructionism that asks participants to describe their cultural influences and the way they have arrived at their construction of

knowledge on a subject. Since this paradigm specifically asks for an individual's social construction, the research phenomenon used to select participants looked to individuals in both the environmental education field as well as representatives from indigenous cultures.

A combination of research approaches was suited for this study. The transformative action research approach is designed to collect in an educational setting by providing insight into how knowledge is created and/or understood (Savin-Baden and Major, 2013). A narrative approach focuses on developing understanding through the exploration of a story (Savin-Baden and Major, 2013) that connects to the lifetime of indigenous culture being researched. In order to collect the actual data through these research approaches both formal and informal interviews as well as surveys were conducted.

Distribution of the survey questionnaire was conducted through the Qualtrics software. For the questions asking participants to select one of five choices for a percentage or description of a quantity, statistical analysis of the data was also run through Qualtrics to produce graphs. These results were compared in order to make conclusions. All other data analysis utilized a thematic analysis strategy in which interview transcripts and survey text responses were searched for themes using the following process (Savin-Baden and Major, 2013):

1. Read the whole narrative or text response to gain a general sense of the data
2. Develop common themes across the data
3. Read the narrative or text response again with a focus on the themes, and highlight sections of the data related to each theme
4. Summarize the themes in a general statement to indicate clearly what is learned from the data

The files were imported into the nVivo software in order to code content to the common themes. Analysis from the software allowed qualitative data to be quantified based on the number of occurrences in the text.

Using the North Carolina Office of Environmental Education and Public Affairs website to identify Environmental Education Organizations, a survey was electronically distributed to individuals at the 504 organizations in order to collect their opinions on the use and benefits of environmental education programs integrated with indigenous knowledge. See Appendix B for the survey questions. The narrative text responses to the questions were analyzed to identify and assign data to the following themes:

- For the question *“Of all the specific programs your organization offers, which has the greatest enrollment...?”*
 - Animal Experiences
 - Children/School Programs
 - Free to Public
 - Gardening
 - History
 - Nature Education/Skills
 - Professional Development
 - Social/Fun
- For the question *“If your organization offers blended programs (programs that integrate indigenous knowledge with Westernized EE practices), please explain the motivations behind these programs? If not, is there a specific reason that your organization is not offering blended programs at this time?”*
 - Never thought of it but could
 - Motivation = Connection to Nature
 - Motivation = Heritage and Knowledge
 - Motivation = Staff Knowledge or Interest
 - Why Not Offered = Non-Compete Agreement
 - Why Not Offered = No Participant Requests
 - Why Not Offered = Not in Mission
 - Why Not Offered = No Staff Knowledge or Resources

- For the question *“In your opinion, do the blended programs (programs that integrate indigenous knowledge with Westernized EE practices) encourage participants to return for future programs?”*
 - Yes
 - No
 - No Opinion
- For the question *“In your opinion, what are the benefits to your community (environmental, social, sustainable, etc) from blended programs that incorporate indigenous knowledge (Native American practices) into your EE Programs?”*
 - Ecologic Connections
 - Engaging Participants
 - Enlightened Thinkers
 - Intergenerational Transfer of Knowledge
 - Leadership
 - No Benefit
 - No Opinion
 - Peace
 - Respect
 - Sharing Cultures and History

After identifying the American Indian tribes native to the geographic region of the Piedmont of North Carolina, three representatives from the Occaneechi Band of the Saponi Nation and the Sappony tribes were interviewed. In order to maintain a common geographic region between the indigenous cultures and the environmental education organizations, it was necessary to select an equal representation of three environmental educators from organizations also located in the Piedmont region of North Carolina for interviews.

These interviews were aimed to gain an understanding of their thoughts and opinions on the current state of our environment and resources, why and how the state they described occurred and how the state of the environment could be improved. See Appendix C for a list of the questions. The transcripts were analyzed to identify and assign data to the following themes:

- Benefits of Connected/Blended Programs
- Benefits of Reconnecting Children to Nature
- How to Connect Indigenous Knowledge into Environmental Education
- Children's Disconnection to Nature
- Children's Disconnection to Their Heritage
- Community Involvement
- Intergenerational Transfer of Knowledge
- Role of Education/Teachers
- Role of Parents

Results and Observations

EE Organizations Survey Responses

The survey window for the 504 Environmental Education organizations ran from January 3, 2014 through January 31, 2014. During this timeframe, a total of 100 responses were received from across the state. See Appendix B for the exact survey responses. The statistical and thematic summaries of the responses to the specific questions are as follows:

1. In what county is your organization located?

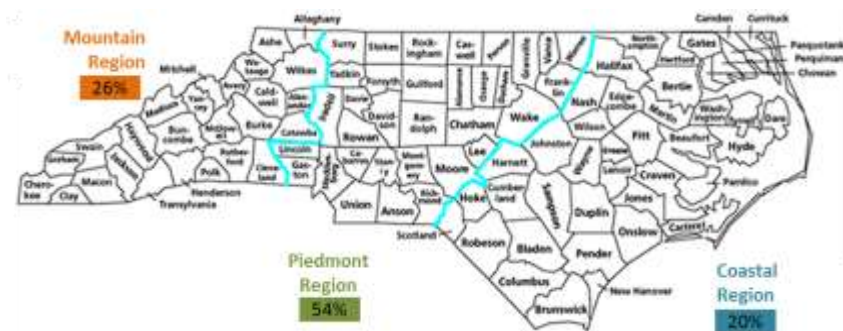


Image from http://www2.lib.unc.edu/dc/ncmaps/browse_location.html

The majority of the organizations in which a staff member responded to the survey were located in counties found in the Piedmont region of North Carolina.

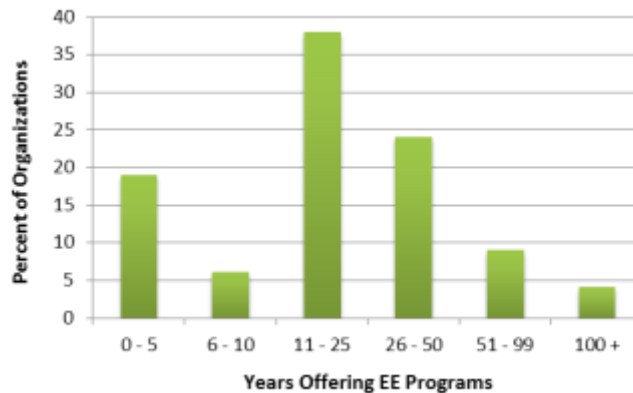
One respondent replied they work with a 10 county region in the triad;

this was included in the percentage for the Piedmont Region

Two respondents replied they work with all 100 North Carolina Counties

Five respondents replied they work across the United States

2. How long has your organization offered EE programs to your community?



A strong majority (75%) of the responding organizations have offered environmental education programs for more than 10 years.

3. What percentage of your organization's EE programs caters to youth?

All of the organizations participating in the survey offer at least one program catered to youth. There are no organizations that do not offer any programs for youth. Approximately 75% of the organizations target the majority of their programs to youth.

From question 5, it can be seen many of these programs include field trips or activities offered to schools in the area.

4. What percentage of your organization's EE programs caters to adults?

A small percentage (approximately 3%) of the organizations participating in the survey offers no programs for adults. Also, a small percentage (approximately 15%) of the organizations offers programs primarily to adults with very few programs for children. The remaining organizations offer a mix of adult and youth programs.

5. Of all the specific programs your organization offers, which has the greatest enrollment and why do you think so?

Through an analysis of the text responses, the following types of programs were found to have the greatest enrollment:

- Children/School Programs – 46%
- Nature Education or Skills – 19%
- Social Experiences in Nature – 11%
- Animal Experiences – 11%
- Gardening – 5%
- Professional Development for Teachers – 4%
- Area History – 4%

Additionally, 4% of the responses mentioned a driving factor to the greatest enrollment was programs offered free of charge to the public.

Some reasons given as the opinion “why” from the survey participants include:

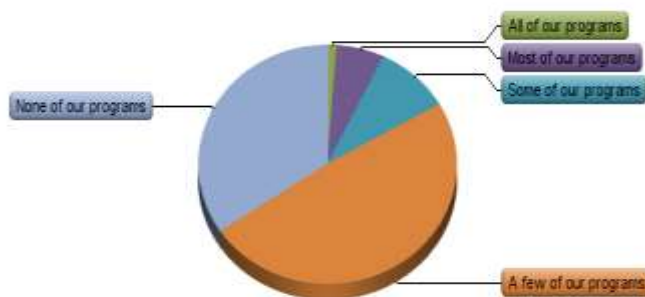
“Because it is part of the NC Essential Standards in science for 5th grade, which is a testing year. Teachers also have difficulty teaching this subject.”

“Our programming is based on the standard course of study for school and often teachers don't have knowledge, skills, or supplies to do natural science studies”

“these are of interest to our customers, campfires are just cool, survival programs from TV maybe and GPS is technology”

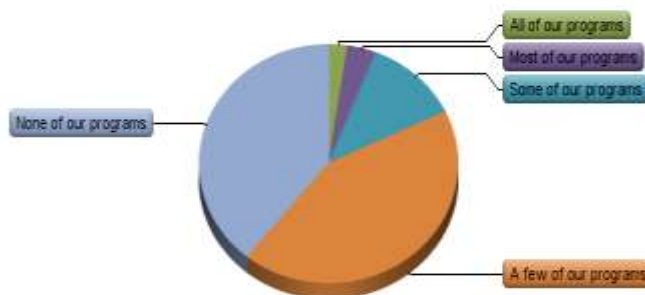
“because everyone loves to see live animals”

6. How much of your total Environmental Education (EE) programs integrate indigenous knowledge (Native American practices) with Westernized EE practices?



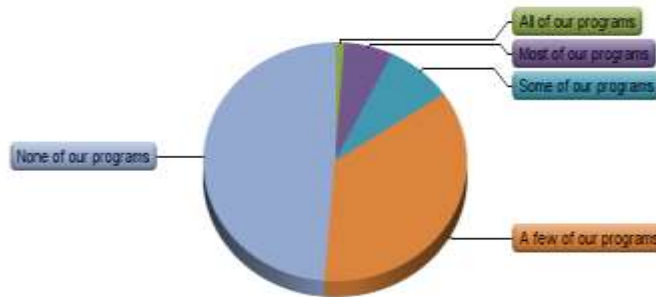
An overwhelming majority, nearly 75%, of the organizations offer none to only a few programs that integrate indigenous knowledge into their environmental education.

7. How much of your organization's EE programs that cater to youth incorporate indigenous knowledge (Native American practices)?



When asking only about youth programs, a larger percent of the organizations do include indigenous knowledge into their programs. This might be due to the increased number of programs offered to school groups to meet the standards.

8. How much of your organization's EE programs that cater to adults incorporate indigenous knowledge (Native American practices)?



When asking only about adult programs, a larger percent of the organizations do not include indigenous knowledge into their programs. This percentage is larger than the total percentage of programs integrating indigenous knowledge, therefore it appears even if an organization integrates their youth programs, they might not integrate their adult programs.

9. If your organization offers blended programs (programs that integrate indigenous knowledge with Westernized EE practices), please explain the motivations behind these programs? If not, is there a specific reason that your organization is not offering blended programs at this time?

Through an analysis of the text responses, 44% of the responses included themes that described the motivation behind offering integrated programs. The distribution of the themes was:

- To educate about American Indian heritage and culture – 71%
- To promote a connection to nature – 25%
- Staff members had a preference to include – 4%

Some additional opinions of survey participants toward the motivation of offering integrated programs include:

"We feel that the Native American love of the land is a critical value to convey to generations that are in virtual reality not in the real world."

"Indigenous cultures have developed a centuries-old model for helping people reconnect with nature. We are tapping into this model because it is a powerful and effective way to help people reclaim their own connection with nature."

"We want people to connect with nature like previous generations, but we also want to take advantage of the new world technologies and practices to assist them in growing with their day and age."

In contrast, 56% of the responses included a theme that described why integrated programs are not being offered at this time. The distribution of the themes was:

- Not in the mission of the organization – 46%
- Lack of knowledgeable staff or resources – 40%
- No request by local participants – 12%
- Local competition agreement – 2%

Some additional opinions of survey participants toward why integrated programs are not offered include:

“We are a science center that and offers programs in all the sciences. We offer regular programs in topics that are aligned to the NC Essential Standards. Teachers usually request topics that they cover in school. Also, we do not have a large population of Native Americans in [our] County so have never considered blended programs.”

“Our main mission on the education side of our center is to help reach science standards in school and unfortunately we have not utilized or integrated any indigenous knowledge into those lesson plans.”

“No particular reason. It is not one of the interpretive themes for our park and none of our current staff has a particular interest in indigenous knowledge.”

Additionally, 4% of the responses also included the following or a similar comment:

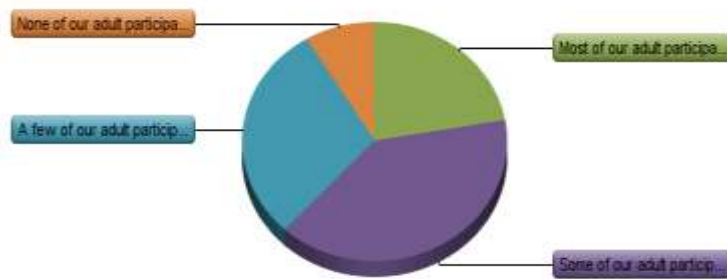
“We could incorporate indigenous knowledge to a larger extent than we do--need time to look at curriculum and training of educators.”

“I would love to incorporate some resources into our materials about how Native Americans were careful with their resources, we don't have anything now and I would not be sure what to include or how to turn it into a lesson or program. Open to suggestions!”

10. How many youth participants return for multiple classes, camps, or programs?

The majority of the organizations do see at least some portion of their youth participants return for multiple events. Approximately 3% of the responses indicated all of their youth participants return for multiple sessions. Only 6% of the responses indicated none of their youth participants return.

11. How many adult participants return for multiple classes, camps, or programs?



The majority of the organizations do see at least some portion of their adult participants return for multiple events. None of the responses indicated all of their adult participants return for multiple sessions. Approximately 9% of the responses indicated none of their adult participants return.

12. In your opinion, do the blended programs (programs that integrate indigenous knowledge with Westernized EE practices) encourage participants to return for future programs?

Sixty percent (60%) of the responses had no opinion or knowledge if integrated programs promoted participants to return; 28% believed it did produce interest in returning for additional programs; and 12% thought it did not affect return participation.

Some additional comments of survey participants toward why program participants returned/did not return for additional programs include:

"I believe it is all a matter of quality. Quality programming will always generate more participation."

"Yes- it's such a different field trip or family vacation that lots of kids want more. It feels too foreign, yet primally familiar, to them to play in the woods, take time to bask in the outdoors, climb trees, catch tadpoles, etc. Lost arts, really..."

"Yes very much so. It makes the information more applicable to human uses in general and is historically interesting. People seem to trust information and value it higher if they are aware that it has ties or dates back to indigenous people."

"No, there is little development on these programs to get people to return and expand upon topics"

13. In your opinion, what are the benefits to your community (environmental, social, sustainable, etc) from blended programs that incorporate indigenous knowledge (Native American practices) into your EE Programs?

Through an analysis of the text responses, 84% of the responses included themes that described the benefits to a community by offering integrated programs. The distribution of the themes was:

- Sharing and understanding cultures and history – 36%
- Making ecologic connections – 28%
- Respect within the community – 8%
- Creating enlightened thinkers – 5%
- Connecting generations – 4%
- Engaging participants – 2%
- Peace – 2%
- Leadership – 1%

In contrast, 16% of the responses had no opinion as to the benefits integrated programs brought to a community and 2% expressed that programs of this nature offered no benefits to a community.

Some additional comments survey participants made about the benefits to a community include:

“Knowing our history and heritage helps us provide a greater perspective when it comes to appreciating and conserving natural spaces and living things.”

“People gain a different perspective to understanding the environment.”

“For the preschoolers that I work with, I think the stories and games would be of value to give them new ways of playing and imagining in nature.”

“Any information that might increase a person’s value or understanding of nature is a great benefit to the community’s quality of life.”

“More enlightened thinkers. Always a plus for a community.”

“The ancient philosophy of caring for the earth as a living thing is a very valuable counterpoint to today’s constant emphasis on resource extraction.”

“By showing how people lived with the planet and had a balance with nature, we can show children this is possible, even with today’s pressures.”

“The inclusion of TEK allows learners to reflect on simpler times, see ways that observation (not technology) can solve problems, and brings us closer to our historical ancestry of land use and social structures.”

“In my opinion a stronger community is one that understands its history and respects its natural resources.”

Interview Narrative Analysis

The interviews with three experts from indigenous cultures and three experts from Westernized environmental education programs in the Piedmont of North Carolina were aimed to gain an understanding of their thoughts and opinions on the current state of our environment and resources and how the state of the environment could be improved. See Appendix C for a list of the questions. From the interviews the following themes from their responses developed. See Appendices D through I for complete transcripts of the interviews.

In regards to the current state of our environment and resources, all of the participants, both American Indians and environmental educators, agreed the world is in an environmental crisis. When asked why and how this crisis arose and who can help influence a long-term change for a more sustainable future, the overwhelming response included the role of parents as an influencing factor to children:

“education does not have to be formalized... parents I think they have the most potential impact for long term sustainability... If you want to achieve sustainability you have to achieve it through education at a young age to begin with but building on through a lifetime” (Interviewee #5, personal communication, February 11, 2014)

“a very influential environmental educator ran a program and they surveyed the children’s environmental attitudes and behavior after that program and they discovered the children’s attitudes and behavior mimicked and mirrored their parents environmental attitudes and behaviors” (Interviewee #4, personal communication, February 5, 2014)

“We are a product of where we came from and so in that same way we have to be intentional about the kinds of ways we reach a whole family instead of just a child.” (Interviewee #3, personal communication, February 4, 2014)

"we need to role model better as adults which is very hard to do because we all have a lot of other things going on in our lives that take focus in our work and in our day to day lives where we have to be inside but we really have to take the time ourselves to reestablish our own nature connection before we can help children to reestablish their nature connection." (Interviewee #4, personal communication, February 5, 2014)

"education ... the kids are not going to know to go; there's going to have to be programs that where parents are willing to bring their kids to some sort of education" (Interviewee #6, personal communication, February 19, 2014)

"And then you look behind the horse and you don't got no driver. The drivers are the parents ...[without a driver] the horse will go crazy." (Interviewee #1, personal communication, January 16, 2014)

Community involvement is also an important theme that contributes to long-term change:

"everybody is equally connected to our future... you can't just educate children for the future you have to educate an entire community of people because everybody is influencing everybody else and the only way we are going to change is by changing together.... It means role modeling it better." (Interviewee #4, personal communication, February 5, 2014)

"it's going to have to be people in the community who know better who are going to have to bring it to the kids or else it's going to be lost." (Interviewee #6, personal communication, February 19, 2014)

All six participants also agreed children have become more disconnected to nature. The participants' opinions on what causes this disconnection include some common themes of technology, fear of the outdoors, and lack of parent support.

"Seems like children now are [more disconnected to nature] ... I know they need to get their class work done but TVs and things now have caught most of the young folks minds" (Interviewee #2, personal communication, January 17, 2014)

"there are all kinds of crazy things that are happening already that are breaking kids away from what we are trying to get through to them anyway. And put on top of that a screen that is mesmerizing with bright shiny colors..." (Interviewee #3, personal communication, February 4, 2014)

"the kids are being stuck in front of these flat-screen 'boob-tubes' for lack of a better term and just sitting there wasting away. They need to get out and break some sticks, fall down in the dirt and see what it tastes like." (Interviewee #6, personal communication, February 19, 2014)

"the reason why we are keeping kids from really exploring nature the way they used to is because of fear" (Interviewee #4, personal communication, February 5, 2014)

"if there's a disconnection there I think again this falls on the shoulders of the adults rather than the kids" (Interviewee #5, personal communication, February 11, 2014)

"I think people are becoming more disconnected with food and I think primally humans most basic connection with nature is that connection with their food supply whether it was going out and hunting or farming or gathering the most basic and primal connection between humans and nature is that connection where humans relied on nature to survive and that is certainly where we're drifting further from that" (Interviewee #5, personal communication, February 11, 2014)

Another interesting reason for children's disconnection to nature evolved during the interviews with two members of indigenous cultures. The participants reported the children's disconnection from their heritage also contributed to their disconnection to nature since the American Indian culture is so rooted in the environment:

"You have got to have the will to do it as an individual... I could put an ad in the [local] newspaper ... and I could put on there Native American teaching call ###-###-####. I would not have to put no name on there. My phone would blow up. I would have people sitting in this shed. Come on in, \$10 an hour. Come on in. I could teach them something I'm doing now and people would be flocking around because they want it. But send an email to our people. Teaching down at [my] place. Learn how to build arrows and make regalia. I wouldn't even get my grandkids... because the past doesn't have any interest in them." (Interviewee #1, personal communication, January 16, 2014)

"they [children] have almost no context of the past or connection to it and its to their detriment" (Interviewee #6, personal communication, February 19, 2014)

When asked about how public education affects children's connection (or disconnection) to nature, the environmental educator participants had various thoughts on the subject of why

children are becoming more disconnected through the classrooms. Only one American Indian participant shared similar thoughts. Some themes include the lack of local information in the lessons, the use of technology, and the training teachers receive:

“where public education is missing out is not enough of a localized focus, an educational pedagogy that focuses on native flora and fauna and local ecosystems because we are giving kids the impression that the only things that are valuable in nature are at the poles or in the tropical rainforests and whatever they see in their backyard is just something waiting to be developed” (Interviewee #5, personal communication, February 11, 2014)

“we seek and see adventures from sitting down and that’s a very sedimentary lifestyle... to just to bring in all the stimuli instead of go out into it.. that’s the change that I see” (Interviewee #4, personal communication, February 5, 2014)

“the university system is failing our pre-service teachers in equipping them to engage their students in that way [connect to nature] once they become full-time teachers, that’s where the failing is” (Interviewee #5, personal communication, February 11, 2014)

“lethargy and apathy....everything has become so instant... I can get this information instantly from the computer and there is no need to experience it; I don’t think there is a lot of value being placed on that experiential learning that a kid gets from playing... nature is a better classroom than the four walls of their room” (Interviewee #6, personal communication, February 19, 2014)

When asked if today’s generation has lost the motivation to sustain their world as compared to past generations, all of the participants, both American Indians and environmental educators, agreed the motivation is waning. All but one American Indian participant thought it is due to a lack of knowledge about the environmental issues, but, with proper education, this motivation could recover:

“Every person’s motivation is based on past experience and what they know. Kids know less about nature because they are not involved with nature so how can we expect them to care about something they know nothing about?” (Interviewee #3, personal communication, February 4, 2014)

"How can they have the motivation if they are not taught it?" (Interviewee #1, personal communication, January 16, 2014)

"In order to have motivation you have to have hope and you have to have a vision you have to have an idea of how to move forward and you have to have the belief you are going to get there" (Interviewee #4, personal communication, February 5, 2014)

"kids are going to love animals ... they'll be interested in them and that's the motivation right there as long as they're provided with the appropriate education to understand what that motivation should turn into" (Interviewee #5, personal communication, February 11, 2014)

"they don't care, they waste stuff; that's the biggest thing I see; they think that everything is just going to be replaced put right in front of them because of this microwave-society mentality. I think that's what's causing that change in motivation, they don't care." (Interviewee #6, personal communication, February 19, 2014)

The interviews continued by gathering information from the participants on how the state of the environment could be improved. The number one response from all of the participants is to offer programs that involve parents and children to educate and reconnect them to nature. A reconnection of the parent is believed to result in a reconnection of the children. The benefits of reconnecting children to nature are to provide them an understanding of their local surroundings and to place a value on its resources. This leads to the motivation to sustain it:

"Being able to get kids back into the environment and make it relevant to what they are going through" (Interviewee #3, personal communication, February 4, 2014))

Referring to kids having an experience in nature rather than sitting in classroom... "Those kinds of things are the choices...those kinds of thoughts and memories are things that change and affect the way we choose to live our lives" (Interviewee #3, personal communication, February 4, 2014)

"I think they'll think it's fun because they'll see that WOW just the stuff I pass over that's just around me everywhere can do all these things. I think they will understand that the world is a lot larger place than what they understood before in that they're more connected to the world as well so I think it will completely increase their view." (Interviewee #6, personal communication, February 19, 2014)

Since the purpose of the study is to explore the benefits of the integration of indigenous knowledge with Westernized environmental education practices, the participants' opinions about if these two methods could be 'blended' is gathered. During the first interview with a member of an indigenous culture, the answer was a resounding "No"; they could not and should not be blended. After a discussion, it was learned their connotation of 'blended' resulted in the loss of both individual practices for the creation of a new practice. The revised question used the term 'connected'. The resulting responses agreed indigenous knowledge and Westernized environmental education practices could be connected with some environmental educator participants elaborating on their opinions:

"We are looking to indigenous culture because they have the technology that is embedded into their culture that we can learn from and we can apply it to our culture. So we are not actually trying to copy native practices. What we are trying to do is learn from what makes native practice so effective at helping children to connect with nature and helping people to connect with nature." (Interviewee #4, personal communication, February 5, 2014)

"there is no reason that kids born in NC can't start to build a new indigenous knowledge regardless of where five generations before them came from... encourage teachers and kids to learn to acquire some indigenous knowledge about where they are now" (Interviewee #5, personal communication, February 11, 2014)

Since the participants agreed indigenous knowledge, in terms of the methods, approaches, and experiences, can be connected with Westernized environmental education programs, they were asked to elaborate on the benefits this type of program would bring to a community.

Teaching a local perspective through these types of programs emerged as a theme from several participants from both cultures:

"I do think it would help reconnect children to nature because children wouldn't view nature as just this thing that maybe is written about in poetry or this place where you live rather than understanding the essential quality of the relationship that we have with nature, the Earth, the environment ... that you can't be disconnected from it as much as you want to think you can be disconnected from it you are part of it as much as it is part of you." (Interviewee #6, personal communication, February 19, 2014)

"it provides them with opportunities to connect to nature when they are not with an environmental educator; ... when kids have knowledge of what is in their backyard they're much more likely to see value in it" (Interviewee #5, personal communication, February 11, 2014)

"I think the way that we interact with the ecology could be changed; not only that but hunting practices, sustainable hunting practices; a respect for nature, perspective that we are all connected; those kinds of things are sometimes lost... our choices and our actions will affect other human beings choices and actions in the future." (Interviewee #3, personal communication, February 4, 2014)

"have that as a community model as how could we make locally sustainable lifestyle that helps the community ... something that is homegrown I think is an indigenous knowledge kind of perceptive, so teaching people about local stuff" (Interviewee #3, personal communication, February 4, 2014)

"it's a great resource ... it's really important for us to get involved with the people that lived on this land; how they used it and how some of those things are very important still today" (Interviewee #3, personal communication, February 4, 2014)

A specific benefit of connected programs mentioned by four participants, one American Indian and three environmental educators, includes the transfer of knowledge through intergenerational interactions in the form of story-telling:

"Those stories are not memorized because of one experience; they are memorized because of continuous interactions." (Interviewee #3, personal communication, February 4, 2014)

“we have to raise leaders that are invested in the values that we are passing on and we have to give them the skills to pass along values as well as teach information and that’s why culture is so important” (Interviewee #4, personal communication, February 5, 2014)

“that familial connection is not what we see anymore ... we need to worry with connecting one generation to the next before we can think seven steps down the road; I think that’s what’s missing that kind of familial connection” (Interviewee #5, personal communication, February 11, 2014)

“the oral history doesn’t have the same residence in our digital-technology based world as it used to and the old people dying off, we’re losing that knowledge” (Interviewee #6, personal communication, February 19, 2014)

“that is more than a wealth of knowledge; oral tradition or oral history dies with that person if it has not been passed on to generations” (Interviewee #6, personal communication, February 19, 2014)

In speaking with elders of the indigenous culture, most of the interview questions were answered with a story that included references to multiple generations of their families as well as symbolism and analogies. Where the environmental educators spoke of the value of story-telling and connecting generations, the indigenous elders demonstrated it as a way of life, a method of communication that could be integrated into Westernized environmental education programs.

Discussion and Conclusions

Description of Existing EE Centers with Integrated Programs

The North Carolina Office of Environmental Education lists 213 centers who offer environmental education programs to the public and another 291 organizations that have an environmental education component within their mission. Unfortunately, very few of these centers/organizations offer programs that integrate indigenous knowledge or practices into Westernized environmental education programs. Of the 20% of these centers/organizations

who responded to the survey, only 6% fully integrate indigenous knowledge into all or most of their programs. Another 52% integrate indigenous knowledge into some or a few programs. Four percent of the survey responses from centers who are not currently offering integrated programs expressed an interest in adding these to their offering but require training and assistance for implementation.

No connection was found between environmental education centers/organizations offering integrated programs and populations of American Indians in North Carolina. The fully integrated programs were found in Henderson and Transylvania counties in the Mountain region, Durham and Wake counties in the Piedmont region, and Dare County in the Coastal region. Although American Indians likely reside in these counties, none of them are historically defined as the homeland to any of the eight recognized tribes in North Carolina.

Responses to other questions provide that 46% of the programs having the greatest enrollment at the centers/organizations are offered for school groups in order to assist teachers with knowledge and resources. Therefore, most of the programs integrating indigenous knowledge are designed to meet the Standard Course of Study for Social Studies to accompany the following objectives from the North Carolina Department of Public Instruction (2013):

4th grade - Summarize the change in cultures, everyday life and status of indigenous American Indian groups in North Carolina before and after European exploration

5th grade - Evaluate the relationships between European explorers (French, Spanish and English) and American Indian groups, based on accuracy of historical information (beliefs, fears and leadership)

Analyze the change in leadership, cultures and everyday life of American Indian groups before and after European exploration

8th grade - Analyze access to democratic rights and freedoms among various groups in North Carolina and the United States (e.g. enslaved people, women, wage earners, landless farmers, American Indians, African Americans and other ethnic groups)

Explain how influences from Africa, Europe, and the Americas impacted North Carolina and the United States (e.g. Columbian Exchange, slavery and the decline of the American Indian populations)

Summarize the origin of beliefs, practices, and traditions that represent various groups within North Carolina and the United States (e.g. Moravians, Scots-Irish, Highland Scots, Latinos, Hmong, Africans, and American Indians)

Summarize the contributions of particular groups to the development of North Carolina and the United States (e.g. women, religious groups, and ethnic sectors such as American Indians, African Americans, and European immigrants) (NCDPI, 2013)

A few survey responses referred to programs that help teachers meet the standards in the science curriculum, but, currently there are no specific objectives from the North Carolina Department of Public Instruction that incorporate American Indians or indigenous knowledge into any elementary or middle grades science content. There are however, curriculum objectives for environmental knowledge and stewardship found in grades kindergarten, first, third, fourth, sixth, and eighth. High school students are required to complete one Earth Environmental science course for graduation. Environmental literacy standards have recently been introduced for all grade levels. These areas provide opportunities for environmental education centers/organizations to offer additional integrated programs to utilize indigenous knowledge to teach and connect students to their environment.

Benefits of Integrated Programs to a Community

In contrast to the low percentage of centers offering integrated programs, 84% of the survey responses believe a community could gain benefits from its members participating in integrated programs incorporating indigenous knowledge. In addition, all of the interview participants also agree integrated programs bring benefits to a community. The most common benefits from all participants include the ability to better understand and share the cultures and heritage of American Indians and the increased connections to nature and the environment. The survey and interview participants describe that understanding native cultures and respecting their values would serve as a way to reestablish nature connections to the local communities and help children to become more connected to their natural surroundings. In addition to the two overlying benefits, some additional results such as respect, enlightened thinkers, peace and leadership emerged.

The results lead to an interesting conclusion that the individuals who responded to the survey at environmental education centers/organizations see indigenous knowledge as a way to reconnect people to nature, but the mission of the organization and/or the actual programs offered see indigenous knowledge as a collection of historical facts. There is a disconnection between what environmental educators think is beneficial by integrating indigenous knowledge into Westernized programs and what is actually being offered to the public. Nearly 75% of the organizations responding to the survey offer few to no integrated programs and of the 25% that do offer them, a strong majority of these programs (71%) integrate historical facts about American Indians and call it indigenous knowledge. But, when survey participants described the

benefits of integrated programs, more than half (57%) provided responses that would benefit nature and our connections to it.

Recommended Best Practices to Develop an Integrated EE Program

Six interviews conducted with experts from the indigenous cultures and from Westernized environmental education programs revealed that methods and experiences from both practices could be connected in order to build programs to benefit a community. By extracting information and advice from the interview participants' responses, a list of recommended best practices for building an integrated program was developed. The three primary themes emphasized by all the experts are the importance of involving parents in the programs, keeping the curriculum focused on local topics, and utilizing story-telling as a method of delivering the information. The list of recommended best practices includes:

1. Identify the American Indian tribes in a defined geographic region that share a common language and method of communication.
2. Collaborate with representatives from each of the American Indian tribes as well as other cultures by coming together to recognize and respect each other's individual experiences and input.
3. Identify folk lore as such so as not to stereotype a culture or portray a false image of a real group of people.
4. Focus the educational pedagogy on the native flora and fauna as well as local ecosystems of the defined geographic region and encourage a community model of sustainability.
5. Include lessons for all subjects, not just science or social studies because information is not memorized because of one experience; it is learned because of continuous interactions.
6. Utilize technology as a tool to connect children to their environment, but don't use it to bring all the stimuli inside instead of going outside into it.

7. Include the generation older than the students in the educational model whenever possible.
8. Encourage a mindset change by showing students there are different ways to live life, even ways they cannot even conceive of now.
9. Deliver the information not through only words but through sensory experiences in order to give them the framework and skills to pass along values as well as teach information.
10. Incorporate story-telling, role modeling, sending students out and then bringing them back and asking them questions as methods to deliver information.
11. Allow children time to free-play and explore in an organized natural area rather than playing on paved areas.
12. Integrate and encourage environmental actions after the educational program. It is not enough to just acquire the knowledge.

Training Program for Elders Mentoring Other Adults

By applying the recommended best practices for developing a program to integrate indigenous knowledge with environmental education, a curriculum is being created within the framework of an environmental education organization in the Piedmont region of North Carolina. See Appendix J for a complete strategic plan. I am working with the Education Director of the organization to develop the *WING* program, Wisdom Inspiring the Next Generations. This training program encourages community elders to mentor other adults. The primary focus of the program is to connect people across different generations and cultures in a way that promotes a regenerative approach to the interaction between people and nature. Through the transfer of intergenerational, cross-cultural, and indigenous knowledge, students of the program gain a deeper appreciation for their community and environment that results in a desire to regenerate nature and leave the Earth in a state better than it was found. There is a

need to build a community of people that understand the importance of sustainable practices. Prior to building a course curriculum, the structural components of the program needed to be developed. The Education Director and I created the following foundational Vision, Mission, and Values Statements:

WING Program Vision Statement:

The vision of the WING program is to inspire long-term relationships for collaboration across generations to pass knowledge between one another that helps serve both communities and nature alike.

WING Program Mission Statement:

The mission of the WING program is to help students build a relationship with themselves, with their community, and ultimately with nature in order to connect multiple generations within the community to their natural surroundings and work together to leave the Earth and its resources better than they found it.

WING Program Values:

The host organization recognizes that the voice of all people is valuable from the elder to the children. A core value of the WING program is to encourage the input from everyone across all cultures and all generations by creating an environment of respect when people speak and an appreciation for what is being said. It is also a belief that everyone possesses valuable skills. The WING program will honor these skills and foster them into gifts that can be used to service the community and nature.

During the first three to five years of the WING program, goals targeted to expand participation in the program include:

- Extend the initial WING program to provide additional levels of training for returning participants.
- Integrate the existing programs for children offered by the host organization and the WING program.
- Identify organizations in other regions with connections to additional American Indian tribes to implement the WING program across North Carolina.

Conclusion

Two different definitions of “indigenous knowledge” emerged from this study. One definition, which was predominantly seen through the survey responses describing existing programs, is that indigenous knowledge is learning about the history of American Indians as specified in the curriculum standards for social studies. This could include learning agricultural techniques, animal tracking, plant identification, and the use of tools such as bows and arrows. The other definition, which emerged from opinions of survey and interview participants, is that indigenous knowledge is a combination of native practices, including story-telling, symbolism, role playing, respect of nature’s resources, and experiences in nature that are effective at helping people connect with their environment.

In 2013, the North Carolina Department of Public Instruction adopted Environmental Literacy standards for all grade levels. However, in this study, no participants mention programs designed to meet this objective. By studying the existing environmental education organizations along with two indigenous cultures, a list of recommendations were developed to serve as best practices in developing an environmental education framework integrating the methods of indigenous knowledge. It is the perfect time to utilize these best practices to develop an Environmental Literacy curriculum integrating indigenous knowledge for kindergarten through twelfth grade. The findings from this study are scheduled for presentation at the 2014 annual conference for the Southeastern Environmental Education Alliance as well as being submitted for publication in the *Journal of Environmental Education* and/or the *Journal of Sustainability Education*. The results are also being delivered to the North Carolina Department of Environmental Education, the North Carolina Department of Public Instruction,

the Environmental Educators of North Carolina, and the North American Association of Environmental Educators.

But public education cannot change children's connection to their environment alone. The parents and the elders of our families and communities are an integral part of reconnecting children to nature. As every expert interviewed expressed, future generations do need the motivation to help resolve our current environmental crisis, but, this young generation does not have full responsibility for their choices. They must rely on their parents, grandparents, or other adults in their life to suggest, approve, and even provide the experiences that allow them to learn, appreciate, and interact with nature. These experiences connect them to their environment. And only when this connection is established will children feel motivated to make substantial changes in the world around them.

Another connection being lost for children is the connection to older generations. Previous generations, such as grandparents and tribal elders, hold a wealth of knowledge about how the world existed before modern advancements in technology. In the past, aging grandparents often came to live with younger family members exposing children to their grandparent's stories. As the interviews with members of this generation demonstrated, questions were not answered using textbook terminology learned in school. The questions were answered with stories and analogies. The message remained similar from both cultures and age groups, but the stories are the points from the interview that made a lasting impression.

A quote from the Alaska Native Science Commission (2006), speaks to the wisdom of the previous generations, "when an elder dies, a library burns". A story from the interview with an elder chief of a local American Indian tribe supported this thought:

"You see, where it comes from, it comes from the part of the stem. It comes from the plant. It comes from the corn stalk. The corn stalk produces the corn. But right now, I'm a corn stalk without any corn. I don't have nobody to teach..."

Nobody knows how an Occaneechi arrow looks like, until I start producing arrows, and everybody that sees one and says, 'that's an Occaneechi arrow'. In Russia, they know an Occaneechi arrow. Up in Washington before they sold the museum, they know the Occaneechi arrow. In Tokyo, Japan, they know the Occaneechi arrow. In Alaska, they know an Occaneechi arrow. And in Australia, they know an Occaneechi arrow. But there is no record of any Occaneechi tools and weaponry. In the village site down there, they found metal axe heads; things of that nature. But an arrow is wood and feathers and sinew. They found some points, but they've never seen an arrow.

So this is what I'm trying to tell people. What kind of bow did they make? I don't know, but my granddaddy made me a hickory bow, and I made a hickory bow, and that's an Occaneechi bow. But I do know, and as far as I know, I am the only person in our tribe that's doing this. And it's going to be lost...

Yeah, and like I said, if we just get one. Just get one. You know I said I would stay in this shed all night long, teaching if I had somebody to teach." (Interviewee #1, personal communication, January 16, 2014)

For our elders' information libraries to survive, the transfer of intergenerational knowledge must occur. By exposing children to this knowledge, it may help reconnect them to nature while building a sustainable network of communities for the benefit of the entire natural world.

References and Literature Citations

- Alaska Native Science Commission. (2006). *What is traditional knowledge?* Retrieved from http://www.nativescience.org/html/traditional_knowledge.html
- Berry, T. (1988). *The dream of the Earth*. San Francisco, CA: Sierra Club Books.
- Berry, T. (1999). *The great work – our way into the future*. New York, NY: Three Rivers Press.
- Berry, T. (2009). *The scared universe*. Chichester, West Sussex, NY: Columbia University Press.
- Charles, C., Louv, R., Bodner, L., Guns, L., & Stahl, D. (2009, September). Children and nature 2009; A report on the movement to reconnect children to the natural world. *Children and Nature Network (C&NN)*. Retrieved from <http://www.childrenandnature.org/downloads/CNNMovement2009.pdf>
- Chawla, L. (2006). Learning to love the natural world enough to protect it. *Barn*, 2:2006, 57-78. Retrieved from http://www.mynatureplace.com/uploads/3/0/8/2/3082677/chawla_learningtolove.pdf
- Duke Nicholas School of the Environment. (2014). IRB-human subjects research. *DEL-MEM Information*. Retrieved from <http://sites.nicholas.duke.edu/delmeminfo/masters-project/irb-human-subjects-research/>
- Dickinson, E. (2013). The misdiagnosis: Rethinking “nature-deficit disorder”. *Environmental Communication*, 1-21. Retrieved from <http://www.unc.edu/~dickins/DickinsonTheMisdiagnosis.pdf>
- Ernst, J., Theimer, S. (2011). Evaluating the effects of environmental education programming on connectedness to nature. *Environmental Education Research*, 17:5, 577-598. Retrieved from <http://dx.doi.org/10.1080/13504622.2011.565119>
- International Institute for Sustainable Development (IISD). (2000). Our Responsibility to the seventh generation-indigenous peoples and sustainable development. *IISDnet*. Retrieved from <http://www.iisd.org/7thgen/default.htm>
- International Union for Conservation of Nature (IUCN). (2009, February). Species extinction – the facts. *IUCN Red List*. Retrieved from http://cmsdata.iucn.org/downloads/species_extinction_05_2007.pdf
- Jowsey, E. (2009, October). Economic aspects of natural resource exploitation. *International Journal of Sustainable Development & World Ecology*, 16:5. Retrieved from <http://www.eslpascaipb.net/downloads/52699618.pdf>

- Lalзад. (2007, May). *An overview of the global water problems and solutions*. Retrieved from <http://www.goftaman.com/daten/en/articles/An%20Overview%20of%20the%20Global%20Water%20Problems%20and%20Solutions.pdf>
- Learn NC. (2009). *Teaching about American indians in North Carolina*. Retrieved from <http://www.learnnc.org/lp/editions/nc-american-indians/1.0>
- Leopold, A. (1949). *A sand county almanac and sketches here and there*. New York, NY: Oxford University Press.
- Louv, R. (2005). *Last child in the woods – saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Lowan-Trudeau, G. (2013). "Indigenous environmental education research in North America." *International Handbook of Research on Environmental Education*, pp. 404-417. New York, NY: Routledge.
- Marashio, P. (1982). Enlighten my mind... examining the learning process through native Americans' ways. *Journal of American Indian Education*, 21:1. Retrieved from <http://jaie.asu.edu/v21/V21S2enl.html>
- Meadows, D., Randers, J., & Meadows, D. (2004). *Limits to growth: the 30-year update*. White River Junction, VT: Chelsea Green Publishing Company.
- Nee-Benham, M. (Ed). (2000). *Indigenous educational models for contemporary practice*. New York, NY: Routledge.
- North Carolina DENR Office of Environmental Education and Public Affairs (NCEE). (2013). *Environmental education organizations*. Retrieved from <http://web.eenorthcarolina.org/net/content/search.aspx?s=0.0.108.37430&btid=3&tid=38022>
- North Carolina Department of Environment and Natural Resources (NCDENR) and the N.C. Department of Public Instruction (NCDPI). (2013). *North Carolina environmental literacy plan*. Retrieved from <http://www.eenorthcarolina.org/N%20C%20%20Environmental%20Literacy%20Plan%20DR AFT%20may%202013.pdf>
- North Carolina Department of Public Instruction (NCDPI). (2013). *N.C. essential standards*. Retrieved from <http://www.dpi.state.nc.us/acre/standards/new-standards/#social>
- North Carolina Office of Environmental Education (NCEE). (2007). *The North Carolina environmental education plan*. Retrieved from http://www.eenorthcarolina.org/ee_plan_web_print.pdf

- Savin-Baden, M., Major, C. H. (2013). *Qualitative research - the essential guide to theory and practice*. New York, NY: Routledge.
- Schumacher, E. F. (1973). *Small is beautiful-economics as if people mattered*. New York, NY: Harper Collins Publishers.
- Shava, S. (2013). "The representation of endigenous knowledges." *International Handbook of Research on Environmental Education*, pp. 384-393. New York, NY: Routledge.
- The World Commission on Environment and Development. (1987). *Our common future: The world commission on environment and development*. New York, NY: Oxford University Press Inc.
- Tucker, M. E. (2009). Biography of Thomas Berry. *The Thomas Berry Foundation*. Retrieved from <http://www.thomasberry.org/Biography/tucker-bio.html>
- United Nations Conference on Environment and Development (UNCED). (1992a). Earth Charter. Rio de Janeiro, Brazil.
- United States Census Bureau. (2012). *2010 census shows nearly half of American indians and Alaska natives report multiple races*. Retrieved from http://www.census.gov/newsroom/releases/archives/2010_census/cb12-cn06.html
- United States Environmental Protection Agency (EPA). (2013). *What is environmental education?* Retrieved from <http://www2.epa.gov/education/what-environmental-education>
- Walbert, K. (2009). *Critical reasons for teaching North Carolina's American indian history*. Retrieved from <http://www.learnnc.org/lp/editions/nc-american-indians/5533>
- Whalen-Levitt, P. (2011). *Only the scared-transforming education in the twenty-first century*. Whitsett, NC: The Center for Education, Imagination and the Natural World.
- World Wildlife Federation (WWF). (2011, April). *Stopping the spiral to extinction*. Retrieved from http://wwf.panda.org/about_our_earth/biodiversity/biodiversity/

Appendices

Appendix A: Informed Consent Forms for Survey and Interview Participants

For Prospective Research Participants via Survey

Please read this consent form carefully and ask as many questions as you like before you decide whether you want to participate in this research study. You are free to ask questions at any time before, during, or after your participation in this research.

PROJECT INFORMATION

| | |
|---|--|
| Project Title: Evaluation of Societal Implications of Indigenous Environmental Education through Integration of Indigenous and Westernized Practices in North Carolina | Organization: Duke University Nicholas School of Environment |
| Principal Investigator: Eric L. McDuffie | Phone: +1 919-623-6447 |
| Location: Durham, NC | Other Investigators: None |

PURPOSE OF THIS RESEARCH STUDY

You are being asked to participate in a study by completing this electronic survey designed to better understand to what extent and how existing environmental education programs in North Carolina integrate indigenous knowledge with Westernized practices. The responses to the survey will help to describe the benefits these environmental education programs bring to a community and to recommend Best Practices for an environmental education curriculum integrated with indigenous knowledge.

PROCEDURES

You will be asked about your environmental education organization, the program(s) you offer and your geographic location. You will be asked to estimate a percentage range of how much your total environmental education program(s) integrate indigenous knowledge with Westernized EE practices. If the programs by your organization to integrate the two methods, then further questions will ask you to estimate percentage ranges for information about youth programs versus adult programs. Finally, you will be asked to provide your thoughts on the effectiveness of blended environmental education programs.

USE OF THE RESEARCH MATERIAL

Your responses to the survey/interview questions will be used in a research paper that is a requirement to complete a master's degree in environmental management at Duke University.

FINANCIAL CONSIDERATIONS

There is no financial compensation for your participation in this research, but your time is greatly appreciated.

CONFIDENTIALITY

This survey is being conducted without asking for specific names of the participants, however, some identifiable information about the environmental education organization, programs, and geographic location will be collected for analysis to be conducted.

PARTICIPATION IS VOLUNTARY

You are free to choose whether or not to participate in this study. There will be no negative consequences if you choose not to participate. You are free to answer questions as briefly or in detail as you wish and to skip questions. You can decide to stop participating at any time, and you can decide if you want me to keep or delete the information you have given me.

FOR MORE INFORMATION

Please contact me, the Principal Investigator (contact information at the top of this form), and I will be happy to answer your questions. You may also contact my advisor with any questions or concerns: Dr. Rebecca Vidra at vidra@duke.edu.

If you would like to participate, please proceed to the survey. Your submission of survey results will represent your consent to participate.

For Prospective Research Participants via Interview

Please read this consent form carefully and ask as many questions as you like before you decide whether you want to participate in this research study. You are free to ask questions at any time before, during, or after your participation in this research.

PROJECT INFORMATION

| | |
|---|--|
| Project Title: Evaluation of Societal Implications of Indigenous Environmental Education through Integration of Indigenous and Westernized Practices in North Carolina | Organization: Duke University Nicholas School of Environment |
| Principal Investigator: Eric L. McDuffie | Phone: +1 919-623-6447 |
| Location: Durham, NC | Other Investigators: None |

PURPOSE OF THIS RESEARCH STUDY

You are being asked to participate in a study designed to better understand to what extent and how existing environmental education programs in North Carolina integrate indigenous knowledge with Westernized practices. The information collected will help to describe the benefits these environmental education programs bring to a community and to recommend Best Practices for an environmental education curriculum integrated with indigenous knowledge. The final product of this research will help develop an adult Elder-Mentor Training Program within the environmental education framework of the Piedmont Wildlife Center in Durham, North Carolina.

PROCEDURES

You will be asked to provide your thoughts and opinions on the current state of our environment and resources. You will be asked for your thoughts and opinions on why and how the state you described above has occurred. You will be asked for your thoughts and opinions on how the state of environment could be improved.

USE OF THE RESEARCH MATERIAL

Your responses to the survey/interview questions will be used in a research paper that is a requirement to complete a master's degree in environmental management at Duke University.

FINANCIAL CONSIDERATIONS

There is no financial compensation for your participation in this research, but your time is greatly appreciated.

CONFIDENTIALITY

Your name and some identifying background information will be collected during the interview process, however, your identity will remain anonymous in the research paper.

PARTICIPATION IS VOLUNTARY

You are free to choose whether or not to participate in this study. There will be no negative consequences if you choose not to participate. You are free to answer questions as briefly or in detail as you wish and to skip questions. You can decide to stop participating at any time, and you can decide if you want me to keep or delete the information you have given me.

FOR MORE INFORMATION

Please contact me, the Principal Investigator (contact information at the top of this form), and I will be happy to answer your questions. You may also contact my advisor with any questions or concerns: Dr. Rebecca Vidra at vidra@duke.edu.

If you would like to participate, please fill in the lines below. Please keep the second copy of this sheet so that you have this information.

Participant Name: _____

Date: _____

Participant Signature: _____

Appendix B: Survey Questionnaire (with response summary)

1. What is the name of your Environmental Education (EE) Program or Organization?
Data responses from this question were not included in the results in order to protect the respondents' identity per IRB protocol.
2. How long has your organization offered EE programs to your community?
3. What is your role or job title in the organization?
Data responses from this question were not included in the results in order to protect the respondents' identity per IRB protocol.
4. In what city is your organization located?
Data responses from this question were not included in the results in order to protect the respondents' identity per IRB protocol.
5. What county is your EE Program located?
 - USA = 5
 - All 100 NC counties = 2
 - 10 county region in triad = 1
 - Alexander = 1
 - Alleghany = 1
 - Avery = 1
 - Beaufort = 3
 - Brunswick = 3
 - Buncombe = 4
 - Cabarrus = 1
 - Caldwell = 1
 - Carteret = 4
 - Catawba = 2
 - Chatham = 3
 - Cleveland = 2
 - Cumberland = 3
 - Dare = 2
 - Durham = 3
 - Forsyth = 3
 - Gaston = 2
 - Guilford = 2
 - Harnett = 2
 - Henderson = 3
 - Hyde = 1
 - Iredell = 2
 - Johnston = 2
 - Lincoln = 1

Macon = 1
 Mecklenburg = 5
 Orange = 2
 Pamlico = 1
 Pitt = 1
 Polk = 2
 Rockingham = 1
 Rowan = 1
 Rutherford = 1
 Stanly = 2
 Stokes = 2
 Surry = 2
 Transylvania = 4
 Wake = 17
 Watauga = 2
 Wilkes = 1
 Yancey = 1

6. What percentage of your EE Programs caters to youth?

- 0% (1) = 0
- 1% - 25% (2) = 6
- 26% - 50% (3) = 16
- 51% - 75% (4) = 35
- 76% - 100% (5) = 38

7. What percentage of your EE Programs caters to adults?

- 0% (1) = 3
- 1% - 25% (2) = 41
- 26% - 50% (3) = 37
- 51% - 75% (4) = 4
- 76% - 100% (5) = 10

8. Of all the specific programs your organization offers, which has the greatest enrollment and why do you think so?

Themes:

Children-School Programs = 41

Nature Education-Skills = 17

Social-Fun = 10

Animal Experiences = 9

Gardening = 5

Professional Development = 4

History = 4

Free to Public = 4

9. How much of your total Environmental Education (EE) programs integrate indigenous knowledge (Native American practices) with Westernized EE practices?
- All of the programs (1) = 1
 - Most of the programs (2) = 5
 - Some of the programs (3) = 8
 - A few of the programs (4) = 41
 - None of the programs (5) = 30
10. How much of your organization's EE programs that cater to youth incorporate indigenous knowledge (Native American practices)?
- All of the programs (1) = 2
 - Most of the programs (2) = 3
 - Some of the programs (3) = 10
 - A few of the programs (4) = 36
 - None of the programs (5) = 34
11. How much of your organization's EE programs that cater to youth incorporate indigenous knowledge (Native American practices)?
- All of the programs (1) = 1
 - Most of the programs (2) = 5
 - Some of the programs (3) = 7
 - A few of the programs (4) = 30
 - None of the programs (5) = 42
12. If your organization offers blended programs (programs that integrate indigenous knowledge with Westernized EE practices), please explain the motivations behind these programs? If not, is there a specific reason that your organization is not offering blended programs at this time?
- Themes:
- Never thought of it but could = 4
 - WHY IK - Connection to Nature = 11
 - WHY IK - Heritage and Knowledge = 32
 - WHY IK - Staff Preference = 2
 - NOT IK - Local Competition = 1
 - NOT IK - No Audience Request = 7
 - NOT IK - Not in Mission = 26
 - NOT IK - Staff Knowledge-Resources = 23
13. How many youth participants return for multiple classes, camps, or programs?
- All of the participants (1) = 2
 - Most of the participants (2) = 22
 - Some of the participants (3) = 33
 - A few of the participants (4) = 20
 - None of the participants (5) = 5

14. How many adult participants return for multiple classes, camps, or programs?
- All of the participants (1) = 0
 - Most of the participants (2) = 18
 - Some of the participants (3) = 33
 - A few of the participants (4) = 24
 - None of the participants (5) = 7
15. In your opinion, do the blended programs (programs that integrate indigenous knowledge with Westernized EE practices) encourage participants to return for future programs?
- Themes:
- Yes = 22
- No = 9
- No Opinion = 46
16. In your opinion, what are the benefits to your community (environmental, social, sustainable, etc) from blended programs that incorporate indigenous knowledge (Native American practices) into your EE Programs?
- Themes:
- Share Cultures-History = 41
- Ecologic Connections = 32
- No Opinion = 16
- Respect = 8
- Enlightened Thinkers = 5
- Intergeneration = 4
- Engaging Participants = 2
- No Benefit = 2
- Peace = 2
- Leadership = 1

Appendix C: Interview Questions for Experts from Indigenous Cultures and Westernized Environmental Education

1. Do you believe our world is in an environmental crisis? Please explain.
2. What are some ways we can make our world a more sustainable place to live by regenerating its resources?
3. Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.
4. Do you believe children have become more disconnected to nature today as compared to the past? Please explain.
5. If you agree with the previous question, what are some ways we can reconnect children to nature?
6. Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.
7. Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?
8. Do you think the children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.
9. As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?
10. Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.
11. Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?
12. Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?
13. How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?
14. What does the term "indigenous knowledge" mean to you?

15. How can the value of indigenous knowledge contribute to sustainable development?
16. Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?
17. Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue?
18. Should indigenous knowledge be blended in today's environmental education programs? Why or why not?
19. If indigenous knowledge was blended in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?
20. Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?
21. The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?
22. If indigenous knowledge and westernized Environmental Education practices were blended to create a richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?
23. In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?
24. According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement? If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?

Appendix D: Transcript for Interview with Interviewee #1

Interview with an Elder Chief of the Occaneechi Band of Saponi Nation Orange County, NC on January 16, 2014 – 4:20 pm to 5:50 pm

(E = Eric as Interviewer, I = Interviewee)

E Do you believe our world is in an environmental crisis?

I Yes.

E Can you explain how you see that?

I *First of all, I believe in climate. Second of all, as far as the world is concerned, I pray each night for world peace, which I don't know whether I will ever see that or not. The Bible says, there's wars and rumors of wars down in the holy land. But our children are getting away from what their grandparents and ancestors about the land, and electronics are just taking over our children. I mean I know it's this way, because I'm not computer savy, but I don't deal with computers. I got enough of that when I was at work. And I really don't need it. As long as I have a telephone, I am okay. The time is drawing near as far as my driving is concerned. I think I got about ten more years of driving. And I got to come up this May and get my driver's license so I don't have to worry about it. But automation is good. But within a sense, it's just going. When my daddy saw man land on the moon, he did when he was 98 years old. He was born in 1912. So, what he's seen. And, like my grandfather he saw the first airport and first automobile. When he died, they were talking about going to the moon. He died in '98 or '99. So, we're moving as far as the world is concerned, and if I'm fortunate enough, and the creator lets me live, I just don't know what I'm going to see.*

E Yeah, I'm with you there. I don't know what we are going to see either. To me, I see it all going too fast, and I don't see it...

I *When you see the airplanes that can go around the world in 12 hours without landing, and you've got nuclear subs that can stay under there a year. So, you know, automation is great, but it's costing... it's costing a lot of our people.*

E So, what are some ways we can make our world a more sustainable place to live by regenerating its resources? And tell me if you need me to repeat anything, and I will be happy to do that.

I *It's got to come from our youth. It's got to come from our children. Come right through our children. I know nature culture, that's the only one I can talk about because I don't know any other culture. The native culture, right where we my people were, and still are, through them we are trying to instill into young people to be proud of their heritage and know where they came from, and to be able to produce things that our people used to do.*

- E Right.
- I *Ah...they have scientific movies on right now in pictures of our people going through these cities hunting food and all this...the TV shows... they got guns, but what's going to happen when they run out of bullets?*
- E That's right. They don't know what they're going to do.
- I *You've got to be able to have a back-up plan, and you got everything you need in the woods. Everything, to survive. You can take an animal and make a weapon and tools. But that's where it's going to have to come from. We are going to have to start thinking on their part.*
- E I agree 100% with you, Chief.
- I *You see, it's sort of like, it's like the Bible said, it's...and I know everybody is challenging the Bible...but the Bible says that Jesus is coming again and we have to be prepared. Well, I say the way the world is going on out there, we had better be prepared.*
- E Yeah.
- I *You know, when it's going to hit, there's going to be a big explosion, which there's going to be some people left. That's what's going to happen. I don't have much faith in the doomsday preference. They got all this stuff underground, when they run out, what's going to happen then? So, we need to teach our children, our people how to consume nature and how to live with nature.*
- E Good. I agree.
- I *And I got deer coming up in the yard. And then people are saying the deer; they are a nuisance, a nuisance, but God put them on this green earth. I think watching bumblebees is a nuisance, but there's a reason for everything. They have a reason to keep the bees to pollinate the flowers to keep it all balanced.*
- E That's right.
- I *There's a country down in South America where they are losing the bees. They are losing the bees and the flowers are not producing. And then, when the flowers are not producing, and when the bees leave, they won't...it's something else.*
- E Yeah I agree. So who are some of the most important people to influence a long term change for a sustainable future? Who do you think those people are? You mentioned the children definitely are the people, and I agree with you there, but...
- I *Well, it's true. I want to who can say the parents, the mothers and fathers, but they are busy. They're busy doing what they need to be doing, you know. You've got to have some elders to stop to take, to stop to paint. You gotta have somebody who can say I'm not going*

to watch TV today. There's a group of kids coming up and I want to talk to them a little bit. I want to tell them where your shoes come from, where the belts come from, where you're clothes come from. We used to grow cotton. We don't grow cotton no more. It's over somewhere else, but not over here. And the fuel, the cars that we drive now are made in other places. And the fuel is not ours. So what are we going to do? You know?

E Hopefully go back and get away from the fuel, because I see that as one of the huge, that's a big problem.

I *You're right.*

E That's where all the problems are going up in the air.

I *That's right.*

E It's a global problem.

I *That's right. Even this stuff right here that keeps us warm, but I can't build a fire in here. You know, I don't have it to burn all the time.*

E That's right, only when it's necessary. So, so you believe children have become more disconnected to nature today as compared to the past?

I *Yes I do.*

E Can you explain how you see that?

I *Well, you can see it. Kids don't know anything about how to do it now. Their parents don't want to spend any time with them outdoors. "Now don't go out there. You're going to get hurt." "Don't go in that water, you going to get sick." And ah, I tell my grandchildren there's a creek down here. They tell me, don't drink this water down here that's coming out of the ground. It's polluted. It'll kill ya. I ain't dead.*

E Ha...ha...ha... That's right.

I *Like up at our place on Occaneechi Land, we got a spring up there. They say, "You can't drink that water because it hasn't been tested" But I say, "It has been tested." Everytime I go out there, it's been tested. I drink it out of the ground. The only thing that's out there is animals.*

E Right. They are cleaner than we are.

I *Yeah. They are. And that's the thing. The children, our children...*

E So, if you do see that these children are more disconnected, as you definitely do see it like this, what do you see as some ways we can reconnect our children to nature? And you've

obviously talked about it with the example of the creek, and, but what are some ways we need to get to these children?

I *The same thing you're working with. The same thing you are trying to organize. Ways we can get these kids with their elders to talk to them about that. Now, when I...I don't say go down there and drink the water. I'm saying, hey, I drink it.*

E Right.

I *You know...and um, if you got it, know how to purify it. You know...you can purify it without pills. You can purify it with pills. But if you boil it, you can drink it. And it's a big necessity; you've got to know how to do it.*

E So, do you see it more of getting the elders and the people who understand how to do something, to reconnect with these children?

I *The parents need to go to the children and teach them how to make a fire. Yeah, I've got flint and steel in my pocket. But I can also make a fire. I got another piece of flint over here, and a knife where I can do it. So I can make it with a bow drill. There's several ways you make your fire; flint and steel. Okay, that's a lighter. Flint and steel is also...and my knife. And I know how to do tinder. So, show them how to do it. The Boy Scouts of America taught me more. I've got my handbooks right now. And I look back on them sometimes...tinder...So, show them how to do that, The Boy Scouts of America taught me more...taught me how to live in cold weather by making a lean-two, and using dry leaves, you can snuggle down in them, to keep warm. There's many ways to do it. But this is the thing I am telling kids now. You're not always going to have fire. In a stove, in a nice house. I had a lady in my house last week, when the wind was blowing. When the tornadoes were coming through. And I told my wife, I said, "You know there's something about Hillsborough. There's something about Hillsborough". Like they are coming down a ramp. We did a pow wow one year in June. My daddy was living in Mebane with his wife. And the tornado came. Crossed right outside of Mebane. My daddy called and said, "ya'll are having a pow wow?" He said, "Watch out for the tornado." People from Durham called. It's thundering and lightening in Chapel Hill and Durham. Please watch out. The people from the pow wow looked up and they couldn't believe it. The sun was coming right down on the pow wow grounds, and the tornado did this...*

E Wow!

I *It did it two years in a row.*

E Wow!

I *They said, "What happened Chief?" I said, don't ask me. That's God. He's the Creator.*

E And hopefully, that Occaneechi Mountain might have had a little something to do with it.

- I *That's exactly right.*
- E That's what I think it is. That Occaneechi Mountain broke it up and said let's go this way with it.
- I *That's exactly right. And they keep cutting things down around here.*
- E They definitely keep wanting to do that. That's for sure.
- I *That's right.*
- E So, do you believe that today's children see nature as an integral part of their community as much as you did when you were a child?
- I *Nope. I don't.*
- E Do you have any input on that? Why is that? What's going on?
- I *It's the teachings. When I was a boy, back in here it was all woods. I was the only child. I was on the river fishing with my uncle. And the boys were down on the creeks and the streams. We built lean-tos back in there and actually slept overnight. Right back in here was woods. All around, nothing but woods. My mother worried about me, but she did not worry about anything as far as anything happening. She said, "You know you might get snake bit. And you might not get snake bit." "I know what snakes are. I am knowledgeable about it." That's the problem. The kids are not getting out. And the kids can't get out like they used to because it's dangerous for them. But now they have organized things like boy scouts and girl scouts, but you've got to have the parents interested enough to get these kids involved in that. If the parents won't support the kids, the kids just can't go out and do it. And if they do go out and do it, they do the wrong things at the wrong time.*
- E Yeah, they've got too much freedom when they go out.
- I *That's right.*
- E In the wrong way.
- I *That's right. So it's the same way with my grandkids. I would love for them to join the boy scouts. My grandson, he's 16. He goes to retreats in Virginia. My youngest one, right now, he's right for the boy scouts. But...*
- E But what are his chances of getting in?
- I *It's all on the parents.*
- E Yep...
- I *It's the parents.*

- E I really appreciate that. Do you think that today's public education system is disconnecting children to nature? And if so, in what ways do you see this occurring and causing the disconnection?
- I *Because, well..., I guess...it has to do with our teachers. They are not teaching it. It's not in the curriculum. To give you a good example of that, the teachers in Alamance County. There's a museum up there in Mebane where on the 12th of February, and they want to talk with me. So they can teach about the NC Indians, especially my tribe. And when they do that, they go right back into nature. How our people used to live. How they used to raise and farm. And as I speak to the children, I say...one kid asked me...so what did children do to be punished? I said the kids never got punished. He said, "Why not?" I said, "Because they did what their parents said". They had a job to do. I said, "The girls followed their mothers and the boys followed their fathers". The girls knew how to plant. They knew how to build a lodge. They knew how to take the babies. The boys knew how to go out and hunt and fish. They knew how to track and all of this stuff, to bring it all together. The girls were taught by the grandmothers and the boys were taught by the grandfathers. This is what's not being taught.*
- E Interesting.
- I *And so, teachers in the school system...they have a curriculum they have to follow. But whoever is writing this curriculum, it goes back up into the universities. They think they know what the kids need to have. But a lot of times they say it's boring. When I go over to the elementary school, and those kids are out there playing, and they ask me to come over there, and there out there planting...seeing how things grow, that's the grassroots of the whole thing.*
- E That's good learning right there.
- I *That's the grassroots of the whole thing. I went to the elementary school, and those kids are out there...they're planting...and they ask me to come over to bless the ground...when they're out there planting to see how things grow...that's the grassroots of the whole thing.*
- E That's right. Getting outside. Getting with the Earth.
- I *That's right. And nobody plants around the houses anymore. You can't get people to plant, you see.*
- E Yep.
- I *Nobody makes biscuits anymore.*
- E *Okay, so I think you may have answered this one. Do you think the children in the schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate and give examples. So, we kind of talked about it...do you think the kids today have as much time to play as you had?*

I No.

E Why is that?

I *Because the way it's structured. You know, you have to have time off and exercise...to clear your mind. But no, because when I got out of school I came home. We played a lot. My mother would have me do something. She taught me how to wash. She taught me how to sew. And when I went into the Marine Corps, I knew all of this. I could do everything a woman could do but have a baby. And this is pretty good, because I saw some of those guys in the Marine Corps that didn't know how to do nothing. They couldn't sew up a hole in their socks. They didn't keep a sewing kit like I did. So, mother taught me this and daddy taught me how to hunt, how to chop wood; what to chop and what not to chop. So, I know kids don't do that anymore. They need to know this stuff.*

E Yes they do.

I *They need to know it.*

E That's right.

I *I bet you 5 kids...take 25 or 30 kids out there and they couldn't name me 5 trees.*

E That's exactly right.

I *And they need to know.*

E I know when I go out and teach in the eco-classroom, it's the same way. And I try to teach them the trees. I go out with them and say, "How old is that forest right there?" They say, "Why would I want to know that?" I say, "Well, let's just say you had to know that." And I go out there and teach them how to age a forest without even having to cut through a tree.

I *And I say, "What kind of trees?" I had a group of kids that I wanted to teach how to make a bow. It was in the wintertime, the year before last, January or February. We went out in the woods and I say, "We need a piece of hickory. Do you know what hickory looks like?" They say, "Yeah." I say, "The first thing you do when you hit this forest is you say a prayer. You say a prayer to the creator and thank him for you being here...I got it for you. What you do is when you walk up to this tree that you know, say a prayer to that tree. Is that the wrong tree? You say a prayer to the tree. But then, there's a difference between those trees. I laid my hand on a hickory." They say, "How do you know?" I say, "Because I was taught that. But this is not what I made my bow out of." "Is this a hickory?" I say, "No." "How do you know?" I say, "I'll tell you what. Take your knife and shave just a little piece of that bark off and smell it. What does it smell like? Does it have sort of a lemony smell?" He says "Yeah." I say, "This is a poplar. You don't want to cut that. It's no good for making a bow." So, after I finish my little class in the woods, they did pretty good. And they did. We cut down several hickories. I said to them, "Say a prayer to the tree, you don't have to make love to the tree".*

E Ha...Ha...Ha...

I *Because this hickory in the old days, this is your life. This makes your bow. You got to find out what to make your arrow out of. I'll show you what firewood is. It makes an arrow. I say, "And you may not have to make a feather. If you have an arrow that's nice and straight, you get close up enough on an animal or a fish, you can feed yourself. But you can put a feather on it and make it fly. Or you can put a leaf on it and make it fly with a leaf.*

E Probably not quite as true. Or is it as good?

I *It's not as true, but if you get it on their right, it's pretty good. A green leaf; that's what I am saying. You've got to have a program for those kids. They need to teach all of this in school. I guess at times, they've got so much to teach them. And you can't teach it all to them. If you shoot it all up there to them...school to me now, especially middle school...if a professor up in college tells you to go get it, you got to go get it.*

E It can be a good thing and a bad thing, that's for sure. So as compared to the society in which you lived as a child, do you believe that today's society has changed in a way to keep children from experiencing nature in the same way that you did?

I *For one thing, a big change in society is our people are living in town...I mean, when I was coming up I lived from the river...you know where the river is right?*

E Yes.

I *We played in that river from Efland all the way down to...I knew when my mother needed me. These people in the neighborhood were like family.*

E You could go word-of-mouth couldn't you?

I *Yeah, we could go word-of-mouth. But now, I don't know who lives next to me.*

E Right.

I *I don't know these people up here. When my children were coming up, my daughter used to tell me...my uncle was across the road. My cousins were all down there around the elementary school. Cousins across the street. There were two things to worry about, two big German shepherds. But now you got too many things to worry about. You got rotwilders and mean dogs. My kids stay right in this area and now you have to be wary of strangers.*

E And this is where I equate society just like nature. Nature, right now the way I see it, is being fragmented. You have fragmented areas. You have a good place over here and not over there. Nature...fragmented...no nature...nature fragmented. You have fragmented areas. That I see it more disconnected.

- I *My family had horses in this neighborhood, because back then everything was segregated. The Mayor of this town, her daughter, they rode horses. They were all over the mountain. Everybody knew them by their horses. They knew whose horses they were. It's like cars. Downtown on the river they rode everywhere. And no problem. But you can't do it now.*
- E That's right. Let's keep going. Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? So it would be the opposite. Do you see a similarity now as compared to when you were a child?
- I *Let me think about that for a minute. No, not even with families. No similarities.*
- E That's sad.
- I *You know, I'm thinking about around the dinner table. Back then I didn't have McDonalds and Hardees. We sat around the table. And right now, my grandkids come over here, and if somebody sees someone doing wrong, it's not a family member. Back when I was coming up, whether you was a family member or not, you didn't sass your elders. Momma knew about it. Dad knew about it. Grandma and granddaddy knew about it.*
- E That's right.
- I *I can relate to the time I was down there on the river. There was Ms. Womble. I heard Ms. Womble call. He'd say, "Ms. Womble's calling you." "Is she calling me?" So she called again..."If I have to come down there on that river... "Yes maim." "Your mama is calling you." So I started up the hill. Ms. Scarlett down there says, "Come here to me." "You ain't my momma." And when I got to my granddaddy's house, he told me. He told me, "You drop them britches boy." And I got to the house. I got another one, because I sassed Ms. Scarlett. So, see, that's what we don't have now. It takes a village to raise a child. And now, that village can get you child in trouble.*
- E I couldn't agree with you more. Have today's generation of children lost the motivation to sustain their world as compared to the society you lived in as a child?
- I *How can they have the motivation if they are not taught it?*
- E That's right. They don't have a clue.
- I *That's right. My grandkids, they is an example. My grandson was born 16 years ago. I had him in my arms. My daughter, she was born out of wedlock. So my daughter, she had to work. So my wife and I had to help raise my grandson. I got pictures. Matter of fact, I got one in this book right here. And I told him I was going to keep it and give it to his girlfriend.*
- E Ha.Ha.Ha. That's funny.
- I *He laughs about it now. There's my grandson right there when he was coming up. Grandma and Grandpa looked after him. And then...there he is right there. Papa was happy. There he*

is right there. And that's before the village was born. He's on buffalo fur, down there near the village. He was about 5 or 6 years old. At three years old, he was dancing. And ah...his brother had his daddy's influence. He didn't have any fatherly influence, just me and my wife. We took the time with him. He would stay with us. We went to the powwows. My daughter couldn't go. She had to work. He was little, and he went with us. He was six month's old. He grew up with us. That's what he's been taught, to dance. Native American dance. He still likes to dance.

E I can say that at the Spring Powwow, I was very impressed with him. I mean he stood out of everybody else to me coming from all over the state dancing.

I *He's my grandson. And I am proud of him. Where ever he dances...where ever he dances, he never dances for money. But where ever he dances, he has money thrown at his feet. And most often he dances by the drum. I told him, "You don't dance for money. You dance for the creator. You dance for your ancestors, your grandmother, grandfather, great grandmother, and great grandfather." I say, "You dance for the elder who's gone on before you." I say, "And you come up in here and dance for the sick and injured, and you dance for the people in hospitals. You dance for the veterans. You dance for the women, the life givers of you. You dance for the mothers, and you dance for the little children. And then you dance for babies yet to be born. Because somebody danced for you before you were born. So don't dance for money. Money's not the way. If somebody wants to give you an honor, then fine. But share it with the drum. That's what he does."*

E Awesome.

I *So this is the answer to your question. I know I got off base.*

E No you didn't.

I *You got to have somebody to teach these kids so they can be respectful.*

E And that probably brings me to the next question that I think this is a transition in these questions a little bit here. So, do you think there are still groups of people in our community that do appreciate nature and live connected to it? And if your answer is yes, who are they? Who are these groups of people?

I *Right now I don't know who those groups of people are. As I look around, I don't see as we have a community anymore. We have people living in this area, but not communities like you want to have communities. I don't see anybody planting. I don't see anybody doing nothing but manicuring the yards. I don't see anybody getting close to the Earth. So if you will read that question again to me, read it again.*

E I definitely will. Do you think there are still any groups of people that are in our communities that do appreciate nature? They appreciate it to the point that they literally live connected to it. And if so, who are these people?

I *Okay, let's define community.*

E Do you want me to go for that?

I *Yes, let's do that.*

E To me community is where a person is a part of a community. They are no better than the other parts of the community. They are simply members of the community who have respect for each other or respect for other parts of the community in a way they know by having this respect and treating the community with equal respect among all the other parts of the community. I'm talking about nature now. The natural community, that if we have that connection together like that, these are the people who end up understanding what a community is.

I *To answer that question, you have got to understand what community is which I do not. There are three families who are 80-some years old. And he's one of them that do. He tries to get out and do things. The other one, he's in his 90's. He's out of it. And my other cousin down here. The people I know, Ms. Scarlett down here. But I don't know these people on my left or my right, or these people behind me. I don't know them. So my uncle, as far as nature is concerned, he likes to go out and plant. No matter what he is planting, this gets him back to nature. This is what he does. Because he helps make things grow with his hands. This is why. Me...I have the animals. Let me rephrase that. The animals have me. They come up, the squirrels, the deer, different animals, raccoons. They come around and I have food for them.*

E This is how you are connected to them.

I *I am with nature sitting in this shed. I don't do nothing in the house but sleep and eat. There's a bed in here when I sleep. I've slept out here, because I was told...when we speak about a community, you can talk about the town. The town could be a community. But, in my immediate community, I don't know these people. And therefore, I can't speak about it.*

E I think that's a great answer and you are dead on with it. I agree with you.

I *You see, when the people die out, the other people come in. It's kind of hard to go down there and say, "How are you doing partner?" It's hard, but I go down there to speak to them. But I don't know his name. I know my neighbor across the street. He's a good neighbor. He's out there. He's in his yard and keeps it looking pretty good. But as far as when you speak about nature, I like to see. I like to see where it comes from the ground. Everything comes from the Earth, and everything is going back to the Earth.*

E That's right.

I *That's how we know prehistoric people because of what they left there...but if you don't leave anything, you don't have a signature. That's your signature. Each track that you make, even though the track is washed away, the track is you. So, if this place burnt down to the*

ground, everybody would say, "Good golly, where is the shed? Look at the arrowheads." So I guess in a roundabout way, now.

- E Thank you for that. I am now going in a bit of a different direction here. How can indigenous, or native cultures, serve as one good example of society's communities that do sustain and protect ecosystems through wise resource management?
- I *You have to go back. You have to go back before all the automation and stuff that we have now. We have to think about how the native people lived long before the Europeans came. Even after the Europeans came. Because you had Europeans that came here. We tried to get away from the actual parts of society. They didn't want any part of that stuff. They tried to get out and up into the wilderness. So they went out there. Eyes were upon them at all times. The land was densely populated with people. Just because you didn't see them doesn't mean they weren't there. Peaceful people watched them. So, like today, in the neighborhoods, you try to find someone and you don't know who's there. But these people that came, they went out into the wilderness; they called the wilderness; but it was already inhabited by people. They had the shot, the powder, and the knives. And as they moved deep into the wilderness there were no trading posts. What happened when the shot and the powder ran out? And the gun rusted? And the wool and the linen tore all to pieces? Then there they are in the wintertime, then the summertime trying to make it. All this time, there's eyes on them, watching them. So these strangers started taking a rock. After a while they were able to make a tool out of it, like his ancestors did where he came from. And he was able to live off the land. And then these eyes got a little bit closer on him. And he saw these people. And the human being says, you're not bothering us. Do you need some help? And that's how he met the native people. And then he found out that they weren't savages. He was. And so he learned to live with them. Then he really learned about nature and how the people lived. Not like he lived, but how they lived. He learned with them and started having children with them. He lived and was accepted into the tribe. So, I guess the only way that's going to happen is stop and look back at time, if they've got time.*
- E I think that's the big question. I agree with that 100%.
- I *If they've got time, they need to stop and look back in time.*
- E What does the term "indigenous knowledge" mean to you?
- I *What is indigenous?*
- E Yeah, what is indigenous?
- I *Indigenous, as Webster's says, "Is the people who were here, the first inhabitants". But that doesn't always go, who was the first inhabitants. I don't think anybody really knows who the first inhabitants were. Because the North came here. The Africans came there. But as far as the records are concerned, Columbus was the only one who was lost over here. And then you've got the Spanish coming in from there. So, who is indigenous? Now, well let's say, if*

you are a native; if you've been here; if your people have been here for over 200 years, then you are native. So I'm native. My people lived here long before. I've been to the cemetery and started to find out when they started recorded deaths, so...

E Alright. Now that we have "indigenous" understood, how can the value of indigenous knowledge contribute to sustainable development? Or can it? Can the value of indigenous knowledge that is around here still, and is fragmented now, but it's still around. At least I think it is. I hope you do. How can that contribute to some sort of way to get the true sustainable development of our world back?

I *You've got to have people interested enough to get out there.*

E Right.

I *It's what you're doing. And have people interested enough to be able to write a curriculum and to present it to these people in a natural environment.*

E I agree.

I *Even in the rain. Even in the snow.*

E That's right. No matter what the elements are. That's the way it should be.

I *That's right.*

E So can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?

I *Yes it can. But it's not only the children. We've got to get it to the parents.*

E Ah...we've got to get to that middle generation.

I *You can't do it without the parents. And their parents have got to have an interest. That's what I am fighting right now with our people. This is a journey center. There's so many reasons why they can't get down here.*

E So we've got to get our young adults more involved?

I *That's right.*

E Just as much as our children. I agree.

I *But who do our young adults report to?*

E They should report to the elders.

I *Yeah, but how to get them to come in?*

E Yeah.

I *Now how old are our young adults, 16, 18? They are going to have to have parental consent. Unless they are 18 and on their own, and then if they are even interested in it. You see, where it comes from, it comes from the part of the stem. It comes from the plant. It comes from the corn stalk. The corn stalk produces the corn. But right now, I'm a corn stalk without any corn. I don't have nobody to teach. I don't have...let's go back. It takes a community to raise a child. Who did the child learn from? Their grandparents. The grandparents has no value to the children now. Things are so hard. First thing my grandkids do now when they come here is come in and turn on the TV. I will not allow a game on my television. I've got signs in there on my TV. And my youngest grandson, he'll sit there at the refrigerator with all those magnets on there, and he'll start making stuff. He's very good at it. But I can't get him to come out here and learn how to make an arrow.*

E How old is he?

I *He's 11.*

E He might get some interest.

I *But now, he works with an atlatl. He loves an atlatl. He throws an atlatl. He's good at it. Now I told him, he'll be helping me when we go to powwows this year. When I demonstrate the atlatl, I want him to be my demonstrator, you see. I say, I want you to get your bow. Okay, learn how to shoot it. One day, I said, "Grandson, how do you make an atlatl?" He said, "I don't know." "Would you like to know?" "Yes." "Okay, I'll teach you how to make an atlatl." I said, "We're going to work with fire, okay?" And so, I hope I can get him to do it. My son demonstrates it. I don't know how my son can do it. My son is 47 years old. He's a grown man. I can say, "Son, do you make bows and arrows?" He says, "No I don't make no bows and arrows" "Well I know how to make a bow and arrow. But do you know how to make a bow and arrow I make?" "Well, no. I make it like I like to make it." "So, where's an Occaneechi arrow?" "I never saw one." I say, "There's a whole quiver over there. That's an Occaneechi arrow." Nobody knows how an Occaneechi arrow looks like, until I start producing arrows, and everybody that sees one and says, "That's a Chief ____ ...That's an Occaneechi arrow." In Russia, they know an Occaneechi arrow. Up in Washington before they sold the museum, they know the Occaneechi arrow. In Tokyo, Japan, they know the Occaneechi arrow. In Alaska, they know an Occaneechi arrow. And in Australia, they know and Occaneechi arrow. But there is no record of any Occaneechi tools and weaponry.*

E That's wild.

I *In the village site down there, they found metal axe heads; things of that nature. But an arrow is wood and feathers and sinew. They found some points, but they've never seen an arrow. So this is what I'm trying to tell people. What kind of bow did they make? I don't know, but my granddaddy made me a hickory bow, and I made a hickory bow, and that's an Occaneechi bow. Now, John Lawson came through here with his horse and talked with the*

Occaneechi. And that's one man's opinion. But I do know, and as far as I know, I am the only person in our tribe that's doing this. And it's going to be lost.

E Exactly.

I *Eric, it's going to be lost.*

E Wow. And that's what I am afraid of. I've been reading a lot about what you are saying right now, and that's exactly what I think. "When an elder dies, a library burns". And if you don't have someone to transfer that knowledge before that library burns, it's lost forever.

I *That's right. There's three books right there. The building of a village. If I go, and they want to know how I did it, they can look in those books to see how it's done.*

E Right, but your ancestors before you. They didn't produce that (the 3 books) because they didn't think they had to produce that for a record.

I *That's right.*

E They just knew they would give it to the next person in front of them.

I *Yes, like grandpa, my daddy's granddaddy. When he got married, she was a Quaker. Grandpappy was Occaneechi. He had to hide his identity to be able to live. So he grew a beard like the Quakers. He wore a slicker and a hat just like the Quakers. I've got a picture of him in an old slicker sitting up there. I've got him in there. And my granddaddy, grandpa's son, never told me one bit I was an Indian, or said anything. But his wife who was also his first cousin, instilled this in me. And she said, you can't tell nobody that you're an Indian. "Then, when did I come from" "From the high mountains at the mouth of the river." Telling a 9 or 10 year old that, it didn't make a bit of sense to me.*

E That's wild!

I *But where she was talking about was coming out of Old Hill, what is now around Clarkesville, Virginia. But she didn't know anything about Clarkesville. She just knew the high mountain means the Sierras. Now it means near the Blue Ridge. I say yeah, this is where they came from.*

E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized Environmental Education Programs and systems. What is your opinion on this issue?

I *I know more about the Sioux Indians and the Cherokee and the Navajo than I did about my people because it was lost. And the Jackson's tore it all up. Matter of fact, the Cherokees fought with Andrew Jackson. And he came back and removed them. Tried to remove them. But by a stroke of a pen he went to Washington and said, "All those Indians east of the Mississippi are to be removed from Indian land." But he forgot about the Saponi, the*

Occaneechi, the Meherrins, and the Waccamaws all down in there. But just because, let's just say, he wasn't ignorant. He was just ill-advised. You can't move all the Indians.

E Nope. This is a political question here. Don't feel like you have to answer this unless you want to. Should Indigenous knowledge be blended in today's environmental education programs? Why or why not?

I *No. One reason is because...I don't think it should be blended in. I think it should be taught separately.*

E Why do you say that?

I *We've got enough people to be able to teach it separately. That's what happened to us. We were...we were blended in by the Europeans.*

E Ah...I see.

I *That's when, when...they went west...when they went west, there was a lot of death going on out there. But in June, yeah in June, 1876, is when Custer was killed out there by the Sioux. 1876...let's go back 200 years, early May 1676...That's when Nathaniel Bacon attacked the Occaneechi Village in Clarkesville, Virginia. 200 years later, Custer did the same thing. Now we were assimilated into the European culture. Because three brothers of my ancestors were joined that name by a Welsh farmer that bought Occaneechi land up in Clarkesville, he enabled those 3 Indians to live up there and work for him. To be able to go down to the General Store and get stuff up there. So the farmer went down there and gave them a name. That's how I got my name, from the name of the oldest of the three brothers. But they couldn't live up there on their own land because they would have been killed as Indians. That was 1676. And this went on till the early 18 to 1900's. They were killing Indians so, that's why we should keep it separately. Cause these things need to be taught to our people. We're losing it!*

E Right. Do you see this better...

I *We were assimilated into the European culture. We lost a lot!*

E Okay.

I *Just like the tools and weaponry we lost!*

E Let's say Indigenous Knowledge wasn't blended into today's environmental education programs. Let's say you have your knowledge and I've got my knowledge and we somehow bring it in together, okay? That's the idea. Do you think that would help reconnect children to nature if we did bring out knowledge together in one place?

I *Well...*

- E And again, because you said no to the first question, you may not even be able to answer this question.
- I *Blended...blended.*
- E Hold on just a second. Should Native American skills or knowledge even be incorporated into indigenous education?
- I *As an example, you take Pembroke State University.*
- E Okay.
- I *It teaches Native American Studies. Also it teaches European Studies.*
- E Okay. But they teach them separate.
- I *Yeah, they teach them separate.*
- E Why do you think they keep them taught separate? Why don't they somehow...because they did blend. You know everything did blend just like you said and because of blended, yes, things went the wrong way I think. But to me, if I can get the best of what you have, and I can give the best of what I have, and we can take the best from both sides and put them around the table and come up with something that makes it better...
- I *But see, when I think of blended, when you blend something, you take one thing here and one thing there. If you take an apple and a banana and you blend it up whatcha got?*
- E Ah...you...that might not be...so what you are doing is not keeping it as pure as it should be.
- I *Look at me. Look at me.*
- E Okay, I get what you are saying.
- I *If you look at me, you look at Moroccan, you look at British, you look at Caucasian right here in town, you look at Blackfeet on my granddaddy's side, and you look at Occaneechi on my daddy's side. But I'm not interested in the Moroccan way of life.*
- E Okay.
- I *I'm not interested in the in the Blackfeet way of life. I'm not interested in the European way of life, even though here I am. And the only reason I got here is because I can't live like a savage. You see, that was savage way of living then. So, I have been fortunate enough, and given grace by the creator, to let me in my own way, retain the knowledge that our people could have survived by. I know they used corn, not this corn here. But they had corn. They had maize. And I have arrows like my granddaddy made. I've got arrows like I made. I got*

bows like I made, a flat bow, not like European bows. My table is not a regular table like people would use like some. So this is what I'm saying.

E Okay.

I *But I do have a refrigerator, a stove, and an air conditioner. But see, I can't...when you say blended, that means put together. Now, in the teachings just like in the school systems, you can't teach the American Indian way, because nobody knows it.*

E You know what I think I'll do with this sentence? Is I'm going to change that word from "blended" to "connected". Does that make a change for you, "If you can connect"?

I *Oh, you can connect, or you could disconnect.*

E Right.

I *But once you blend something together, you can't change that.*

E So I need a new sentence. Because we don't necessarily need a new substance because of what we already have.

I *Yeah.*

E But if we could connect...

I *We could connect.*

E Then we might have something to work with here.

I Yes.

E Okay, I'm going to...

I *You see, that's the European way of thought. That's Webster's "blended".*

E Yeah, that's right.

I *See, you could say.*

E I appreciate that. That's important.

I *So let's bring them together.*

E So, if indigenous knowledge was connected in environmental education programs, do you think it would reconnect children to nature?

I *If we had the children to do it with.*

E Okay, I get you there.

I *But, now how are we going to do this? This is what you have planned?*

E Yes.

I *So, if we get that approved. If we could get it instituted in a Program, then yeah. But now, who is going to teach it to them? The children.*

E Yes.

I *Young adults.*

E Yes.

I *And then you look behind the horse, and you ain't got no driver. The driver are the parents.*

E Right.

I *Keeps it...the horse will go crazy.*

E So the answer lies with the parents it sounds like.

I *That's right.*

E And the children don't know any better, but the parents are old enough to start to know better.

I *What would happen today, if tomorrow the parents say, "Okay kids, me and dad's going off for a week." There ain't no telling what would happen.*

E Yep.

I *"Me and dad's going off for a week." But you've got to have guidance now.*

E That's right.

I *And you've got to instill in the parents that this is important for the future. It's so important for the future, that number one, twenty years ago, you wouldn't have even thought about your cell phone with all the stuff on it...the iPad. Now you can't live without it.*

E Right.

I *So you got to think for the future. What's going to happen one of these days when all the things blows up or something?*

E We won't have anything to fall back on.

- I *Look at this. What if all the power went out?*
- E And that could happen.
- I *What would happen if all the power went out in this shed right now? We've got light. I've got a lighter.*
- E I guess our eyes would have to start to get used to the dark real fast.
- I *I've got some lighter stick up here. Some lighter wood.*
- E Yeah.
- I *What are they all going to do if it all goes out? The bank accounts would be shot. Everything they've got is on the computer.*
- E Yeah, that's right.
- I *Everything.*
- E That's exactly right.
- I *And we had a blackout a couple of years ago. What happened to them people? If it had stayed out for two weeks, they would have been dead.*
- E So that takes me to this question here. Gradually, the value of indigenous knowledge is being integrated in government activities. Okay, the UN a couple of decades ago recognized the value of native cultures and indigenous knowledge and what it can bring to this world, but it still remains largely unrepresented in environmental education. So, you take the political realm, and they're starting to see that we need this indigenous knowledge to help us do what we need to do right now. But it still has not been recognized enough to put where our children are learning. So, why do you think it remains so unrepresented in education or environmental education programs?
- I *Number one, is when you say "Native American", knowledge, and culture...oh man...we go through these United States right now before they were the United States...they got native people that you can't even understand because they don't speak the same language. That's just like their culture.*
- E Right.
- I *I mean, I don't think I could live off of blubber..*
- E Yeah, I was wondering what you were thinking about up north, northwest.
- I *Yeah.*

E Yeah.

I *Even right here...even the Algonquians, the Occaneechi were a small band of Souian people in this area. You've got the Cherokee, the Iroquoian. You go up and come around, and you've got the Algonquians. And the Cherokee coming down there, you got the Saxapaw, the Hispanics...So all of these people are different cultures in a vast area. It's just like Ambrosia. You got all those fruits in the same bowl that came from the same plants. What is Ambrosia?*

E So again, some of these questions again, are coming from different sources where people are studying this stuff, and one particular area that I got is the knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement?

I *I got a lot of questions about this one. You just can't blend the native culture. You have to have specifics. Working on the east coast. Working on the central part. Working down in Florida. I mean, even though we are native people, and when we meet together in a big community, everybody speaks American. And they speak their own language. If I was fluid in my language and walked up and saw an Algonquian and said...meku ginihu...I say, hello, my name is _____, he wouldn't know what I was talking about.*

E So the cultures that are in the United States are so different that...

I *It's like your fingers. You get them all together and you got one hand here and one hand there. Both have a grip, but each one of those fingers has a different purpose. So that's what I'm saying. When you want to teach something like down there in Pembroke...now I know they are doing Native American studies down there. And I'm quite sure...I think if you are in a certain area, that it could be blended together.*

E It's going to be hard to do though.

I *Yeah, it's going to be difficult.*

E It would have to take understanding from both sides that if we want to come to this table, and I'm going to recognize and respect what you bring to this table, that you will do the same for me, then we can have a meeting of the minds, and then we could start to talk.

I *Okay, now we are just going to have to break this down, because we just...Read the question again.*

E Question read out again...Do you agree or disagree and why?

I *Disagree, because number one, we are talking about many, many native cultures. Imagine you got a bunch of grapes. It depends on what grapes you pull out. The next grape you pull*

out could be different. But now, if you are going to blend native cultures in one area, you cannot go over and get the Arapahoe. That's a culture all itself. Then you got the Mandance. And then you got the Sioux. Seminole. Cherokee. You got all those tribes up in that area that don't speak the same language.

E I see what you are saying now. They just aren't blendable.

I *That's right. If you just pick one, then you got it.*

E Gotcha. So, if I'm a consultant, and I want to go to a certain area of the country, and I want to say okay, this area of the country is your culture, and this same area of the country is the westernized culture. If I take just your culture and talk about how your culture can help these people in this one geographic area, and you see it as being possible?

I *Yeah.*

E But if you tried to bring everybody together, it's just impossible.

I *It would be a fight.*

E Too much fighting involved.

I *But it's going to be what you call an educational fight. Another words, you...for instance, let's look at what we have here in North Carolina. You've got the Waccamaw Siouan. You've got the Lumbee. Now, it's a question about the Lumbee having a culture. But now they are combined with several other tribes...Siouian tribes. So, yeah, it has happened. Yeah, and then you got the Haliwa-Saponi in Halifax and Warren Counties. Then you got the Person county Saponny. Then you got the Occaneechi Band of Saponi Nation. Now those three tribes right therE The Occaneechi, Haliwa-Saponi, and Person County Saponi; they all trying to teach the same language. Hey, we're the same people, even though you live in different neighborhoods. But now, when you go to the Meherrins, the Algonquian-speaking people; they don't have the same language we have. Some of them have the knowledge of their culture, not that much. So if you go especially into the dance part of it, they doing what they call stomp dances. And the rest of the dances they do, snow dancing, where we stick with the cultural dances we do. So this what I'm saying. In this area, if you going to teach it, and blend it in, we're going to have representatives from each one of those three tribes to bring it all together so it will fit, just like a star blanket.*

E Yeah, that's how I see it. Yes, that's my vision. You've got to have that representation from everybody to put their piece into it.

I *Right.*

E So you can make the total piece right.

I *So it will be authentic.*

- E Right.
- I *If you start running up to the Sioux, and the Mandan, the Crow, and the Blackfeet, you can't do that.*
- E They are too different.
- I *Yep.*
- E So you could go, you could blend more within a region, but you can't blend within a larger space.
- I *Yes.*
- E So you have to know the boundaries. That there's some boundaries you just can't cross.
- I *That's right.*
- E Okay. That makes sense.
- I *Let me tell you about the boundaries you can't cross. In powwows, some people are not understanding we're mixing different tribal colors and parts of regalia; mixing them up.*
- E That puts a lot of people in a bad place.
- I *Yeah, especially like when you go into a powwow you don't wear a red bandana if you don't know whatcha doing. That's Black Mountain Apache.*
- E Gotcha. And that gets reported on I bet, doesn't it?
- I *Oh, God yeah.*
- E I bet they'll run you out of town.
- I *That's the reason I don't wear a head dress. My head dress consists of a gustowa that has different feathers in it. I don't wear an eagle feather. But mine is an otter skin with three feathers: a red-tail, vulture feather, and a hawk feather. And that's what I wear, my people, and turkey. That's what I'm saying. You cannot...beadwork...is one thing that will get you messed up. And a lot of people...the beads don't work with the men. And some of those beads is wrong...some has to do with burials.*
- E It doesn't show the respect.
- I *That's exactly right.*
- E So I think we've got this question nailed down now. The next question says, if indigenous knowledge and westernized environmental education practices were blended to create a

richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? So now, I think we've established in a certain region, you can have...there is a possibility that you could blend...not blend, but connect...sorry about that. You could connect our cultures to make it better for our children. But if we did go that far and actually do it, do you think that new framework would actually help to create a more sustainable future through those children? And that's a tough question, because you're trying to look at the future and you don't know for sure, and that's what is so hard about it.

I *I'm not looking at the future. I'm looking at the past, coming on up to where we are now.*

E Exactly. History is travelling in a circle.

I *Yeah it is. History.*

E That's right. You got it. So it's almost like, is it too late? Do we have time?

I *It's sort of like teaching. If you connect with one student out of 15 or 20; if you connect with one, then your job is not what you want.*

E But you know you've done something.

I *You got one.*

E That's right.

I *You got one that's going to run out of there, just like a salmon, when he's going up the stream. That one that makes it up that waterfall; she's going to lay them eggs.*

E That's right.

I *It takes two. You've got to have that male up there too. So this is the thing. Look. Yes, it's possible, but you've got to have the will to do it as an individual.*

E That's right.

I *You've got to put some sugar on it.*

E That's right.

I *You've got to show them.*

E That's right.

I *Now, I'll tell you right now...it's people. I could put an ad in the newspaper. And I could put on there, "Native American Teaching, call - - - - - ." My phone would blow up. I already have had people sitting in this shed. Come on in, ten dollars an hour, come on in. I could*

teach them something I'm doing now, and heck people will be flocking around because they want it. But, going to send an email to our people, "teaching down here, learning how to build arrows and make regalia." I wouldn't even get my grandkids.

E Why is that?

I *Because the past doesn't have any interest to them. The only thing they want is a card in their pocket that says they're Occaneechi. And I don't have no card.*

E That's unfortunate.

I *It is. You know, I need a card to get into a powwow. I don't need no card to get into the powwow.*

E Well you know what? That's leading into the next question right here that's saying...now I'm going to go to your words...In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children? And it sounds to me like they are losing that too.

I *In the next seven generations, we won't have any culture. We'll be so well blended in this place that everybody is going to look alike.*

E Right. So do you think that art has been lost in your own culture, to look forward to the next seven generations?

I *Well, no because I'm putting it into the hands of God, the Creator. That somebody is going to come by and do it. That's why I'm still here. I ask God every night; I say, "Grandfather, let me live and give me shelter, and strength."*

E So you are doing it every day, I think.

I *So in my blessing every night and every day. That's why I am still here. I know when I'm going to die> I'm going to die when I get somebody in here that can learn this stuff, and then my job on this Earth is done because my job is done.*

E That's right. That's a teacher right there.

I *That's right. I'm here to pass this on to my generation, but like I say, right now, our people...now don't get me wrong...are not against it...the only thing I say is somebody has got to keep this up. Now in our tribe, they marrying native people, they marrying white people, and Mexicans. And that's what's going to happen. That's what's happening. It's going to be blended. It's going to be blended. It's being blended right now.*

E Ha...ha...ha...It's going to happen no matter what we do. It's just going to be all together. I'm with you there.

- I *In the future, we're going to need what you're talking about. We are going to need it.*
- E Right. I see that too. So I guess...
- I *Somebody had better come forward. "We ain't going to a movie tonight. We're going to a program to learn about your ancestors."*
- E That's right. Last question.
- I *Go ahead.*
- E According to the Alaska Native Science Commission (2006), Native Americans believe, "When an Elder dies, a library burns". For our information libraries to stay intact, the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement?
- I *Yes, I agree with that statement.*
- E If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?
- I *Yeah, and like I said, if we just get one. Just get one. You know I said I would stay in this shed all night long, teaching if I had somebody to teach. Some of my people.*
- E Well, you've taught me a lot.
- I *I've got a bed over there. Three beds back here. And I got...and it's warm in here. And if I could get two young men, because women is supposed to teach the women. And I'll teach a girl how to make this stuff, because women did use it...sit back and watch me every day. Because they got to go out and find out how to get it. They got to know what to look for. It's not making it. It's preparation.*
- E So do you see a possibility if we try to go this route by creating some programs within an environmental education framework, that it's possible to reconnect our children to nature?
- I *I think so.*
- E I think so too.
- I *I think so. But you see, it's sort of like...to put it in the terms...to plant that garden, he's got to get out there and tend it.*
- E That's right. He's got to pick those weeds.

I *He's got to tend it. That's exactly right.*

E I thank you so much for all your time.

I *Well, I thank you for involving me in this, and I'm very interested in it.*

E I'm glad.

I *And I've gotta say...school ain't no good unless you got pupils to come in there.*

E With good teachers to teach it to them.

I *With good teachers.*

Appendix E: Transcript for Interview with Interviewee #2

Interview with an Elder Lady Representative of the Sappony Tribe Orange County, NC on January 17, 2014 – 5:50 pm to 7:30 pm

(E = Eric as Interviewer, I = Interviewee)

I *My daddy. He always had two horses and a cow. So, we had to live kind of...they were proud of fields and planted gardens...and growing the food, my mother...we had to shuck butterbeans, picked black-eyed peas. I reckon we grew everything we had to live. Growing...my mother canned a lot. We would have to sit down and shell beans, peas, corn. She would take the young ears of corn...when she would always say don't bring no hard corn...and if milk comes out of that ear of corn, bring it. Because if it is kind of hard, it is not as good as it is young and tender. And so we canned food, and ah.. my daddy he have what they called an orchard by the house...the home house is still there. And if everything goes well, I hope maybe it will be back if it's the Lords will to let me live there. And some of those old trees that my most is dead but is an old apple tree there. It don't bear no apples, but the sign of it is still there. There is about 71 acres of land out there. It's a homestead there now, but there is no one living there now. We used to rent it out, but we gave up on it. But we will build granny's house, but it burned down last January and we have to start over again. But I was raised in what is still there.*

E Do you believe our world is in an environmental crisis? Please explain.

I *Well, I hope not. But, it is better now because when you go down the hill to the stream to get water and bring it up the hill to cook with and to have to drink, and...but, now the spring water tastes good if you keep that spring clean...keep something around it when it comes big rains to keep the excess dirt and sticks and things out of it. And keep a place open about that wide with a long string. And it's possible you can find another creek that you can let it flow into. That's some good water...it's some good water...tastes a whole lot better than when you go in the city to get sometime.*

The air now...had to be cleaner when we was growing up because we didn't have all these cars on the road and people with tractors and wild animals to make it bad.

The summers are hotter now...more ozone and exhaust fumes now than when I was younger.

There's more people in the world and more people, more animals, and...

Some people ought to take the time to keep their surroundings clean you know, catching germs and different things.

How we used to use the manure from the cows to fertilize the land. They had to, well...the boys was older and the two girls...the third girl, and I they told the truth because I saw the

tomb stone when we cleaned out the graveyard with her name. That's what they told me because she was up with some of the older boys, and ah..anyway...ah...back there then people kept they yards and you know we had to grow things to eat and...chicken...the boys had to clean the chicken house out..had to go in there and take the horses out the stable and clean that out. And then had to put on the wagon and go down across the field and throw it all out in the field and then go back with the horses and plows and plow all under that dirt. Them boys would go take the hair and and smooth the land out, runs the rows, plant the garden, and had a pretty good garden.

E What are some ways we can make our world a more sustainable place to live by regenerating its resources?

I They'd take and clean those barns and chicken houses out. The wagons would go out and spread it out on the field and take those horses and go out and cultivate that land. Take those big rakes, smooth it out, run the rows, plant, and it was all pretty.

The best soil has a dark color to it. It's better. It's not as sandy looking, and that deep red soil, but they always said it wasn't as good as that darker mixture.

E Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.

I Community...yeah the community, because my daddy...anything about the Robinsons that lived down in Orange County...that road...the community, if you ever heard of talk of the Robinsons in far Orange County ever since I could remember it, three brothers and their children, and we lived not far from them. They used to raise chickens for sale and my mother would go over on Fridays and help them dress chickens to get ready, and before they was refrigerators come about much, they had a pond of water, they would dress those things and put in bags in heavy containers so water would keep them cool and they would can.

And with tobacco, my daddy would always have a tobacco farm and he and them would work together real good. We would help them and they would help us. I was a teenager then. All the children would help with all this work. Them Robinson's down there, most of the old ones have died out now, but some of the younger ones are still here.

When I had chores to do as a child around the house...when I was old enough to wash dishes, sweep floors, I had to do that and go to the field by nine or ten years old. In the house, my mother taught me because the boys were older than we girls. When the boys got old enough...one of them had to stay at the house and help mama out, and when my brother got enough to hit the field, well I had to help my mother in the house, clean clothes, clean floors. When we finished that we had to hit the fields with them. The girls stayed with the women folk and the boys stayed with the men. Papa always made the youngest boy stay at the house and when he get old enough the next youngest one would come in to help mama and they would switch off. Because my daddy didn't believe in no lazy children.

My grandparents was dead before I could remember. But in the community, the grandparents would influence the family. And they wouldn't be able to work like they did in the younger days, but they would keep those grandchildren around and show them how to step in and do things and as soon as they got old enough to hit that field, they would go on out there. They was keeping children for younger people to work, help keep the house so mom could recover and get rest. It has changed some today as it used to be. The children had a lot more influence from the generations and when they were asked to do something, they did it. It was their responsibility, but not for these children today.

E Do you believe children have become more disconnected to nature today as compared to the past? Please explain.

I *Yeah...ah...I don't unless, children now cause we did have to do ... but seems like maybe they have more connection with school, things, and they some of them don't get home till late, and so you got to have somebody come in and help you along cause you don't want to not let them get their education, or they won't never have nothing. They so busy, that they don't go out and play like they used to.*

E If you agree with the previous question, what are some ways we can reconnect children to nature?

I *That's a fifty thousand dollar question. My grandson, he's 12...my youngest grandchild. He likes to go hunting. He's got a gun. He kills squirrels, goose. He is so busy, but he loves to cook. He's a good cook at 12 years old. And he is really a good cook. He washes his hands, keeps his hands clean, and he is good at it. And some of his food is so tasty. After he plucked that goose, he washed it good, sunk it in some salt water, and if it's real warm, he would set it in the refrigerator. Then he'd take it out, rinse it good, and cook it.*

Every Friday, we would eat fish. One year, it was near the Easter. We had to have fish, Friday night, and Sunday. And a lot of people might not eat fish on Sunday, but she did one year on Easter. A neighbor lived down the hill below us. Somebody said he come up there and was getting ready to go to town. Mama sent him and got those fish. She loved to fish. They would catch their own fish and eat them, like your two fingers, like that and that...we had to help her clean those fish...the real small ones we would not bother, but those catfish, that's what triggered me. I had to pull the hides off those things, and if they were not dead yet, those prongs would stick in and hurt so bad, and would take so long to get well.

E Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.

I *Not answered directly.*

E Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?

I *Yeah...they can't you know, cause you do want them to get an education, but I'm sure it's pressurized somewhat because they have little home. And they need to get their studies so they go to class. They won't sit there and look and think and didn't have the time to get their lessons done.*

E Do you think the children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.

I *I believe it because if they didn't have maybe twenty minutes to just explore, and do some little things they like to do, and then come back and study. I believe a little relaxation is good for them.*

I remember daddy would take me out to the woods and he would talk to us and showed us how to find water and things like that. I spent a lot of time outside with my family and would learn how to live off the land. We all could witch water with a stick. Finding water...we would hold the stick in our hand, yeah...hold it in your hand and just walk around in different areas, and when you find water, it's going to start turning...it will...a "Y" and it would turn point down where the source was. It had to be a hard stick...a hickory... it would pull you and you could not stop it.

E As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?

I *Around the farm, we had to help mama in the house. After the chores was done, we would read. If the church was having something, go to that. They would let us go play with some of the neighbor's children for a while. We played outside in the summertime, but now in the winter months if it was dry would go out there and pick some, ah...pick some...and take a long plank over it and made our own see-saw, and played baseball, different things like that. We stayed more outside whenever we could after the house chores was done, outside we'd go.*

We used to look for arrowheads. It was fun and it was a white man that lived in a house when we would go to the home house. We called him the arrow man...we'd go out and find arrowheads...some he would give us a quarter or ten cents so we could make some money. Lord yes, we would get our work done out there in the fields we would hit looking for arrowheads. I had a bag I was going to keep from my younger days and my younger sister got a hold to 'em and, I don't know, I think she must have carried them to school and give them to other children. We could never find them, but mama gave her a good whooping.

E Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.

I *Not answered directly*

E Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?

I *I do. Ah...now I reckon seems likes children now are...I know they need to get to class, but TV's and things now have caught most the young folks minds.*

E Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?

I *I think so. Well...My grandson, he is a more...I don't know what to call him. He loves fish. And, ah...play ball, cook. He is just...he will get those lessons. He is good about outdoors. He does it on his own. We always tell him to get your work and lessons done. Then he has minutes to go out...it's good for him to get out and get fresh air. He would love to garden, and he'd plant. He'd take the hoe, before he was strong enough with the lifting, he would take the hole and go dig in the holes and plant his seeds and have his little garden and the little fella, when he started to school, one day he'd come home. He'd say, here granny...I reckon he would have that many string beans. He was about 8 or 9 then. I'd say, "What did you do?" "I did it in school. I would give some to my teacher and give some to you." The children would be running and playing and he would have something to dig holes at school and planted those seeds at school.*

E How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?

I *I think you have answered this a lot already. I will move on to the next one.*

E What does the term "indigenous knowledge" mean to you?

I *If I have, I have forgot about it. We used to go out and get sassafras leaves and make tea. Flag root...for certain ailments, especially if a child stomach cramps...and if you would either take, cut a little piece of that root, some used to grow up there. You would boil a little and get cold and put a drop or two in his mouth and let him swallow it. He would burp, and it would just come right out his thing and sooth his stomach. We would find this in swampy areas.*

E How can the value of indigenous knowledge contribute to sustainable development?

I *Not answered directly.*

E Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?

I *I think so. I really think so. That's a fifty thousand dollar question. If the parents would talk to the children about these little odds and ends it might help. And as they go to school and college and get it from other old folk's heads, and let them think of it too, I think it would be a big help. By asking the older people about what they did.*

Mama used to...she made several dresses that people got married in. Quilting, people would come together. Whenever they get ready, most people when I was growing up...especially living in the country, still did farming, sew, and they would have what they call corn shucking's...well mama and them used to at the house we children would help put maybe one or two quilts in a frame. We would piece them together and put them in frames and when my daddy would then invite men to come and shuck that long corn, his wife would come. Some would quilt and some would help mama cook. And sew. So, they'd...some would be in the fields shucking corn. The ladies would be in there quilting. Some would quilt fast to get two quilts done while mama and maybe one or two would be in the kitchen cooking to feed everybody. And just before dark they would try to have all the corn shucked and they would come up to the house, the corn shuckers and get around the table, eat supper, go home, and the ladies would help mama wash the dishes and then go home.

E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue it would be good?

I *Not answered directly.*

E Should indigenous knowledge be connected in today's environmental education programs? Why or why not?

I *For the farmers, it would be good, you know, because some people get a college education and still farm. It would be good. To take care of the soil*

E If indigenous knowledge was connected in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?

I *Right. I think it would.*

E Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?

I *When we would be there at 8 and get out at 3, it is about the same. When we got home, if you had cows, go water the cows. Come back, bring in wood for the night to cook with and warm with. And then you get that done, you eat and get on those books. Opposite of what it is now. Now do your homework first. We would go to nature first before we went to the books.*

E The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?

I *Agree. My earlier answers have spoken to this I think.*

- E If indigenous knowledge and westernized Environmental Education practices were connected to create a richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?
- I *It um...well...I think outdoors means being; some outdoors means a lot because being inside all the time, you know...maybe you don't get enough air, fresh air, or something...*
- E In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?
- I *Some people used to say if you use the same place over and over again to plant, that the soil would not be as good anymore. I think that is right.*
- E According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement? If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?
- I *Not answered directly, but telling stories were given as proper answers to so many of the questions. So, story-telling is a huge piece in transferring the knowledge through the proper connection between the generations and cultural connections within the education system.*

Appendix F: Transcript for Interview with Interviewee #3

Interview with a Park Ranger and EE Coordinator for the Eno River State Park Orange County, NC on February 4, 2014 – 3:50 pm to 4:55 pm

(E = Eric as Interviewer, I = Interviewee)

E Do you believe our world is in an environmental crisis? Please explain.

I *I feel like just personally as a park ranger that most...we are failing to really connect to how we take care of the earth and the resources we have in a way that, you know, sustains it for the past the here and now. And why that's important...we have an immediacy to our specific society right now and what we can get now, what can we achieve, what can we have constant interaction, so the idea of trying to...people come to the park I think to remove themselves from that and we allow them a place to escape or a refuge from some of the things that are just so fast paced and they realize there's some timeless ecology that's happening and you can immerse yourself in that and that's all good. And I think that we can somehow, with pedagogy, teach better that we are doing now to the masses, and I think a certain amount of people get that one way or another. Being more...somehow doing that better for a larger group of people would be something real to them so that were are connected instead of just say single serving experiences.*

E What are some ways we can make our world a more sustainable place to live by regenerating its resources?

I *As far as regenerating resources, it's difficult. As far as, I think, we have to immerse people in with NC State Parks in that we have the perspective like a school of thought that the way that the ecology. We allow ecology to just do what it normally and naturally will do...that allows a place for all life...you have fungi, you have the lower part of the ecosystem building on the older longer living autotrophs in the society in the woods to procreate and generate themselves. That perspective that is something that needs to be seen as an important not only to the forest but to us as people that are from North Carolina of from Durham. Why is it important to have these areas that are free from non-source pollution or free from certain instances where we have got a large amount of people walking through the same area seeing the very same things. Expecting and influenced by an interest to that area that may or may not be...so like, I don't know if that answered the question or not.*

E Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.

I *The grass roots people, the people that have interacting actions with people on a daily basis is who generates what we think and feel about our environment. So, a great example, the kids that I see in the park that are afraid of snakes learn that from their mother or father or grandparents. So we are a product of where we came from and so in that same way, we have to be intentional about the kinds of ways we reach a whole family instead of just the*

child. It's proven I think. I am involved in a church and I heard once in church, this is not a state park. It's my personal belief that if you get a man, the head of the household to go to church, then the whole family will come 80 or 90% of the time versus another member of the family. The statistic, the head of the household, if you can get that person engaged in something, everyone else will follow. I think the same is true with other social practices including and being involved in going out into nature and visiting and really engaging what's there. If we can get the whole family associated with this instead of just a onetime experience that would be very beneficial.

E Do you believe children have become more disconnected to nature today as compared to the past? Please explain.

I *Okay. Yes, I think... I grew up in an intended generation, but we were expected to go and, we would go on vacation to Roane Mountain...there was a stream...we would just go play in the creek 8 or 9 hours a day. And that experience was great where got a chance to build dams and things and go and look for critters and see, you know, scarlet snakes: all kinds of really neat things. And we really got involved with what's going on around us outside the four walls we lived in every day. And so, that world is significantly different than what we see in the classroom, and significantly different than what we see in our social behavior and significantly different than what's really important with popular society. So, you know that was something that I saw as a real benefit to me because when I left my career or left for college and then learned about different things I was interested in and came back into something I wanted to do for a living, staying inside a box was not the idea for a fruitful life for me so I found a job in a park. There is so much they are missing.*

E If you agree with the previous question, what are some ways we can reconnect children to nature?

I *I want to try to assume that technology has to have a place in this because kids are going to be immersed in that, you know kids already have grabbed on to that with a sticky glued hand, so, there has...and that's okay...that's a new horizon for our culture and our society but we have to figure out a way to use that technology or not even...to prove that nature is still relevant in that society. There's some...it's a tool instead of a life style, I think that there has to be a really important boundary to set. Setting boundaries is an area of society...every other circumstance we are in, we are setting boundaries...we are not set by boundaries of what drives us or what kind of things we choose to do on our free time, and how we choose to do that. So, I guess a great way of an analogy... But, yeah, being able to get kids into the environment and make it relevant to what they are going through...we are teaching kids as their bodies are changing so there are all kinds of crazy things that are already happening already that are breaking kids away from what we are trying to get through to them anyway. And put on top of that a screen that is mesmerizing with bright shiny colors is like taking an appealing circumstance and throwing it at a kid who doesn't have disabilities in that way. So, like being able to interject in that, and give them another path that can be relayed in life, I think one of the really great programs I do; I put together last year. It's*

called "Interview with a Wildflower". And one of the things that I do and a way that I teach in that program is...I go down the trail and I leave a kid by themselves with a plant and booklet about different things about the flower, and a different circumstance. I may not have flower for every kid, but I have a plant they can look at and investigate on their own. I separate them from their social order and allow them to investigate that plant; the smells around that plant, see if there are bugs or interactions going on around that plant, and then we come back to the group and we share one of our own personal experiences with nature. And in that circumstance the kids have a completely new experience from themselves that they invested in, and then they share with the group something about the shared experience as a whole. And that is a way that we can make it real for kids that is lasting.

E Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.

I *I don't know because I don't have small child and I don't interact with a small child on a daily basis to see how they are interacting with the environment. I am not that child, but I am a man who lived through a societal change where the options for me to enjoy myself outside of work now have more options when there comes to a computer or television or something like that than it did originally when I was growing up. So I can say from my experience, that I am less engaged with it, and can assume that because kids that have...if I have less engagement with nature as a park ranger, then I also see how a kid has got his hand tied behind his back on that front too.*

E Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?

I *This is completely my opinion. But, I taught...I studied to be teacher in school... and I was...I went to Appalachian State to be a History High School Teacher and what I noticed over time is it's less funding for education and more reliance on test-based systems and what that creates is the push to make it where you can answer those questions effectively to prove how smart you are. There are different ideas of thought on what intelligence is and where intelligence comes from, and the opportunity to go outside is lost when you have to teach to a test versus the opportunity to enter a new adventure outside. It's not easy, it's not convenient. When a teacher is left in a circumstance when they have got the stressors to have to get these grades out of a kid; to have a job, or get a raise, or have anything. The first thing that goes out of the wayside is the perspective that says let me help this child open their mind, you know. And that's not the fault of the teacher. That's the societies' choice in how we say what is important to us and what's not.*

This is an opportunity for kids...to effect a change, but we need to teach to A,B,C, and D as the effectual possibilities of life, the in between disappears as an option, and if there's so much more that's available.

E Do you think children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.

- I *When I went to school, so I graduated high school in 2002, and so...I remember in my elementary school we played outside for 30 minutes a day. Middle school was a time where that dramatically changed. But I was always involved in outdoor sports all the way up until I got into college and then I chose to be involved in outside sports. That was always something I did and it always had a part in my life. This was this identity for me. So, that was important for me based on social experiences. In high school, you could easily stay in school and not go outside all day. And I had many circumstances where that was the case, and the outlet for me was going outside. So, I think that the one I hear more and more about just from the news is stories and stories of us using technology in the classroom or using iPads or using smart devices and smart boards and that kind of thing and how kids are seeing adventures from sitting down, and that's a very sedentary lifestyle to just bring in all this technology like that. And so that's the change I see. From a perspective of the Park, we have less funding for kids to come on buses to be able to come to the park and enjoy nature and for Rangers to give programs, and what we have a combination to make based on that is that we either go to schools and bring some mounts and that kind of thing or we have a group of, a core, or an entire grade level come out over a two day period to the Park which is very hard from a Park perspective to do. You have 200 kids to see the Park through a couple of Programs for about three hours. Logistically that is very difficult, but it gives the opportunity. The opportunity is still being offered which is better than not having the opportunity at all.*

An opportunity I had, I was in college and working at Price Lake State Park on the Blue Ridge Parkway. There was a group of kids from the YMCA in Durham. We took a group of these inter-city kids to Price Lake and went canoeing for 2 or 3 hours. And they were out there with themselves and they did it. They had never swum. They had never been outside of Durham before, and they went to a lake and got in a canoe. It's like a trip to Mars for them because it's completely out of their realm of possibilities and these kids were beautiful and at the same time, they were completely excited about this opportunity. And I have seen this happen when these kids are brought to the Swinging Bridge at the Eno River State Park and see these kids walk across this bridge screaming and excited, and we didn't teach them anything in an organized class or common core. It was just a new experience that they talked about for the rest of the year. They will never forget that, it is etched in their memory for all time. That's important. Those kinds of things are the choices. Those kinds of thoughts and memories are the things that change and affect the way we choose to live our lives.

- E As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?
- I *This was answered already. We moved to the next question.*
- E Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.

- I *I don't remember seeing as many overweight children as when I was kid as compared to children now. That's the only thing I can say for sure that comes to my mind.*
- E Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?
- I *Every person's motivation is based on their past experience and what they know. Kids know less about nature because they are not as involved with nature. So how can we expect them to care about something they know nothing about?*
- E Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?
- I *I think there are many groups that have different perspectives on how nature is helpful and how it can affect and improve their lives. The way I got this involved in nature is when I was a kid being in Boy Scouts. Bot Scouts gave me the opportunity to go camping every weekend. And we were involved with it every weekend. I can't speak of any scouts now because I am not involved with any Boy Scouts. But those principles have served me my entire life. So that is very nice. There's individualization in our society, so what I notice a lot about the way we choose to interact with society is things we are interested in is on a one-person basis or how I feel to Twitter or...personally how I hear things twitter are birds. The things I notice are that we are so individualized; the idea of an association is a foreign concept for a newer generation. That being said, we do have a real involved group of people here in our community which is the Eno River Association. And they are doing a really good job of connecting by using the Eno River Festival. And that money raised at the festival is being used to make more land to either make it a part of the State Park or land that gets protected from development on the Eno, which is just as important. And it takes cooperation on what people can do. If it's not in the State Park line, does a family want to hold on to their farm and not allow the Eno to become a giant development? Absolutely! How about we just put easements on this property and we are not going to have condos on the Eno, but we can still have this land for perpetuity. So, those are not necessarily separate from each other, and they're connected kind of like John Blackfeather said in year's past is the idea that there is not a meshing of all these assimilation of different cultures, but the idea that we're connected in one thought process or another is absolutely important. And the important thing to say is that's great and okay to be able to say this group of people feels this way and that group of people feels that way and this is how we're connected in that way. That's a good thing.*
- E How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?
- I *I feel, the thing I can really say, and that doesn't say anything about Piedmont Indians in there, but Roanoke Indians and Indians I learned about when I was in school use "Three Sisters" or three different types of plant groups they used to feed themselves; soybeans, squash, and corn or maize. And they mixed these things together, and in them, they used the*

different properties in the soil so that the soil did not lose their nutrients completely, but at the same time they got everything they needed to survive and it was a communion in a way for all the things necessary for human survival. And that is a really cool concept that we can still do this with our societal functions. It just changes; it's a different thought process than what we do now. It's not a single service wrapped up in plastic, here's your opportunity, you know?

E What does the term "indigenous knowledge" mean to you?

I *When you say indigenous knowledge, it's a different experience. It's not something...it's not a thought process we hear coupled together very often. Indigenous, the first thing that comes to mind is that it is a people originally from an area. So, in America we're a melting pot of thousands of cultures and here in North Carolina I feel like, at least in recent history, in the past 20 years we have done great job of allowing the melting to happen, and to be good with it. And I hope to continue to inspire people to do that. I think there is a lot we can learn from nature. I don't know how those two things can connect though. I am having a hard time putting my finger on it.*

E How can the value of indigenous knowledge contribute to sustainable development?

I *Yeah, I think that if we think about my analogy I have about the "Three Sisters" and using that perspective of farming and cooperation, then you could have that as a community model; as how could we make a locally sustainable lifestyle that helps the community without having a giant Henry Ford kind of response to every kind of thing; like food stores and transportation on a worldwide level. Something that's home grown I think is an indigenous pattern perspective. So, teaching people about local stuff so our kids know more about a mayfly larvae instead of more about rhinos in Africa...that kind of thing, you know...are there lions here or are their beavers here?*

E Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?

I *I love the storytelling perspective that a lot of Native American people share with their children to explain different life cycles and, but also telling them. I really like the idea of some Indian cultures of having something that you make grow on. For instance, I don't know what Indian society made clubs out of things, but we have a tree in the Park that's an Osage Orange tree...these things were found from the Osage Indians in the middle part of America. But Indians treated these oranges that look like oranges...they are green and smell like oranges, but they are not oranges. They traded them in every Indian society in North America. And these trees can be found naturalized all over America. And they're a very hard tree, make hard wood, and they are used to make all kinds of tools from bows and also clubs and different things like that. But they heard the story, and I don't know the tree they did it with, but they took a metal spike or like a stone spear-like thing and they would use the sapling and they would wrap it up and let the tree grow. After wrapping this stone with the tree sapling and as it grew it fused together with the stone. And by the time the boy warrior*

was fourteen of fifteen at manhood, the tree and the stone would be together in one club and they would cut the tree off and this boy throughout the 15 years of his life was taking care of this tree and nurturing this tree to become the tool for his use as a warrior. And that was his for all time. And that perspective, the idea that we are connected to this...that taking care of nature is really important and serves the benefit of our society and our future is a great thought.

E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue?

I *I think you are right. I actually attempted a year ago to put together some...a framework to teach Native American Studies at the Park level about Occaneechi and Eno Indians in the area, and to try to share that with a group of kids in school. As far as small programs I tried to put together fundamental knowledge about herbs and herbalism and those kinds of things. What kinds of plants have a use that we know we use now even in western medicines; even doing a program about how people used the river in different ways, and different things that can be eaten or that kind of thing. Those kinds of programs have yet to be successful with that. I just ran out of time, time to put towards it. But there is also the interest level from school groups that we don't have a core objective that says "Know about your Native American peoples". In school groups that are taking fieldtrips, there's the need for that Program in there in a piece of paper, but it's definitely there. I am ignorant in these things, and I would like to learn these things.*

When talking with an elder Occaneechi Indian Chief, there is an annual heritage thing last year and it was awesome! And the one cool thing that would be good to do is a dugout canoe. But the problem in this area is that people did not make dugout canoes. But in this area, they made it out of bark which is not a sustainable option because we would have to kill a tree in the Park for the bark to last for two years...and that is not a really sustainable thought process for the "Three Sisters" argument.

E Should indigenous knowledge be connected in today's environmental education programs? Why or why not?

I *I think it is a great resource. The only really good example in western culture even...hitting the surface there are these old "Foxfire" books from the 60's and 70's where a group of hippies got together and decided to teach people how to make cool stuff. Not all of it was actually correct, but at the same time we digress. I think it is really important to get involved with the people that lived on this land, and how to use it. And how so many things that are very important still today. And not only that, but if you think of like...you say where did you grow up? Like, I grew up in Boone. What do you know of the people that used to live in Boone 5,000 years ago? Can I answer that clearly? No. But can I tell you about the people I grew up with? Absolutely, I can tell you all about our history or something like that. But I think that's a knowledge base we should all be more interested in.*

- E If indigenous knowledge was connected in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?
- I *I do. I think the way that we interact with the ecology could be changed. Not only that, but hunting practices, you know? Sustainable hunting practices...a respect for a nature perspective that we all are connected. Those kinds of things are sometimes lost. I think are lost...our choices and our actions will affect other human beings' choices and actions in the future. And that's something that I don't hear often. That's not something mentioned in a 30-second football ad. It's not convenient.*
- E Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?
- I *I think it has a lot to do with the...like we spoke about earlier. The vast majority of people that I see that are involved with EE are Caucasian people, or people that have in one way or another, been involved with the...that's what I've seen. We have to get the other groups of our society interested and see how it's important to them to save nature. One of the ways that we are tried to interact with people here in the state park system is that we now have a free fishing program, and it's free fishing rental through a North Carolina Wildlife Program. It's great. We have a grant for that equipment and it is a free opportunity for people to go fishing where they don't even have to buy anything. So people can use public lands and public dollars to enjoy themselves by interacting with nature. That is the purpose. We have to get people to do that. And at the same time, if you increase the base of the people that are doing the actual interaction with nature, you are going to breed people that want to teach other people to do those things. That's how we got into it, that's how, hopefully, the next generation will get into it and enjoy it too.*
- E The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?
- I *I think I can say it can't hurt. And I think it would definitely help.*
- E If indigenous knowledge and westernized Environmental Education practices were connected to create a richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?
- I *I hope so. I think the possibility is there. How affective it is all depends on how we can implement it.*
- E In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?

- I *Absolutely. Elders run our government. I think that everyone teaches other people by their actions. It takes a very wise person to listen to somebody else who has lived their life before them. It's not a common thing because people are not used to going in our parts of society like that to learn. People like to look for the new. I grew up with my grandparents, and so that was really my loss when they left this world. That has affected me. But, you can learn a lot from other people that are older than you not only because, you know, you should, but it's more important to say they have gone through the same struggles. Whether you can articulate or understand them or not, it's a I would also say to that point, when looking at past generations to not put your own personal generational thoughts on a person's societal changes. And the way I would say that, you know, I mean when people study Abraham Lincoln in school they never hear about Abraham Lincoln wanting to make a separate country in Africa for all the African. That never makes the history books or its reason for anything. And, he was a product of his society. That's not something that I agree with. That's an example of a man we look up to and aspire to based on a few of his actions, not based on the whole action and how we perceive it. So, yeah, I think we can't lose the opportunity to take care of ourselves for the next seven generations. When you said that I look at the things that are going on now I wonder how many generations. I don't think seven, I think three. Seven is a completely, it's a whole another world, 150 years. And that's out of the way I think, which is great in a way. That's something I didn't know about native cultures which could serve me well. It could serve us all well.*
- E According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement? If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?
- I *Yeah. I think that it's absolutely true. It's all the way you do it. There are some really neat things going on. I heard this week about recording people's voices and the idea of why this is important...everybody's voice is important. When you hear somebody's voice, it tells you about where they are, who they are, how they appreciate the world, and what they have done. Even in just talking with them a short little bit. But in having that in a digital record will in a way give even a common person a legacy which is important to everybody. Every person that exists hopes they will be remembered, so I think that in same way. I would like to think that my grandfather is remembered by the things that he told me about his life and I can give it to my children because it's my feeling that the information he had given to me needs to be shared.*

I'd say it's a really cool idea. I think that there's got to be some fail-safe kinds of things to obtain this information based on the technology we have available as well. Recording people's stories not for the convenience; oh I don't have to remember this, but because

those stories are not memorized because of one experience, but they are memorized because of continuous interaction. So like, if you ask a mentor, this adult person to take time away from their personal family or raising children, their job, or anything else, they can't come into the circumstance with a whole heart. If you told me my grandparents were back from the dead and I could spend a whole hour with them, there is a whole difference there. I don't know how to translate that into a rational thought.

The way I think of it, and the way you are talking about this, I was thinking of pieces of straw and bringing multiple pieces of straw together and one piece of straw is not very strong by itself. But if you have a blending of them you have a tight straw. I think it's a really awesome idea.

Appendix G: Transcript for Interview with Interviewee #4

Interview with an Environmental Education Director Durham County, NC on February 5, 2014 – 5:00 pm to 5:55 pm

(E=Eric, I=Interviewee)

E Do you believe our world is in an environmental crisis? Please explain.

I *Yes, absolutely. And the most important word there is crisis. I think it is merely a problem or simply matter of changing a few small things. I think it is crisis in a sense in order to address the situation we are going to have to have fundamental changes. And the reason why I think it is in crisis is because we are up against environmental changes like we have never seen before. But more importantly, we are also up against a human culture that's not worrying to towards nature in a way that has been for the human history, and we have to go back and make cultural change before we can experience a real difference. And how human behavior is linked to nature is the focus.*

E What are some ways we can make our world a more sustainable place to live by regenerating its resources?

I *Do we have a couple of months? I think it is about local culture and local economy and local resources, and bringing our attention to the resources that we are using in a way we can really see impact; and bringing our consciousness to the real impact that our behaviors are having. And I think it's really about having everybody having a smaller scale impact by living a simpler life. But that's going to take a lot of education around resources...how we are exposed to things like electricity, about what kinds of things we can conserve within our culture. I was...I used to work at a place where there was a lot of education of showing people how we used live back without electricity. And just the concept of grinding corn in our river with river water...such a hugely different concept than what we have to this day. And to just show people that there are different ways to live life than what we can conceive now. I think it takes a mindset change because there are so many different changes that we would need to even have to actually have a sustainable lifestyle or regenerative lifestyle that we couldn't even get into it in the course of this interview, So really, I think it is a big issue about mindset change and that is the first thing that needs to change before we can address anything else.*

E Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.

I *Everybody is equally connected to our future. I was reading this study on environmental education and a very influential and environmental educator ran a program, and they surveyed the children to learn a lot of different behaviors after that program. They discovered the children's' attitudes and behaviors mimicked and mirrored their parent's environmental attitudes and behaviors, and it has brought me to the understanding that you*

can't just educate the children, the future, but you have to educate the entire community because everybody is important to everybody else and the only way to change is to change together and to embrace changing together; to have role modeling and being willing to take small steps and embody ourselves.

E Do you believe children have become more disconnected to nature today as compared to the past? Please explain.

I *Absolutely. In the past they did not have so many things to plug into. They did not have video games, TV's, or computers. We didn't have all the different distractions that children are faced with right now. So, for children to even discover nature, it's a miracle because they have so many things that are vying for their attention. And these things are being created by some of the most brilliant minds in the world. And the advertising executives are some of the highest paid and smartest people we have. And they are focusing their attention on how to get our children's' attention and how to use it to their advantage.*

E If you agree with the previous question, what are some ways we can reconnect children to nature?

I *I think we need to make what's happening outside as important as what is happening inside. We need to role model that as adults, which is very hard to do because we all have a lot of other things going around us keeping us busy. It is going to take focus and work, and on the day to day lives where we have to be inside, we have to take the time for ourselves to establish our own nature connection before we can help children with their own nature connection.*

This whole idea about America being a litigious society and being afraid of having children be outside the way we used to be, and the more I am looking the more we are realizing it is true and it's not just rhetoric. It's absolutely true that the reason why we are keeping kids from really exploring nature the way they used to is because of the fear. And it's not a...the stories I hear about people in other cultures and other people in rural areas who are growing up just a few decades ago, they were okay outside, and were outside from breakfast to dinner and they were left to fend for themselves and that was considered a healthy way of life. And it is still considered that way in a lot of countries and a lot of cultures and has been a forgotten ideology of this country.

I think it's the role of a mentor to play because in this culture we need to have people to start to be ambassadors to the natural world, both for parents and for kids. And that's what the mentor and that's the way we can help to rein still the sense of safety of being outside as by having people who are ambassadors to the natural world who can help us make that connection, and understand how it can be safe.

E Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.

- I *You know, I was just in Poland. When they offer a word of forgiveness or word of thanks, they give it to the animals as well as to the people. And when they wake up on Christmas morning they literally splash water on both the animals and the people. Everything they do they are treating their animals as family. There is this huge ancient wisdom about nature connection there. And, I can't say that I was raised that way, but I can say I had those feelings as a kid. I had the feeling of connection. I remember a feeling as an intangible connection that has so much value to me. And I may not have described it as my family, but in essence it was impacting them on the same level as a family. And I do think we are losing that. And because it's a matter of time spent, connection can't be manufactured quickly. It is built with the timelessness that comes from spending lots and lots and lots of unstructured time. And you can't give somebody that extensively. And I think that kids who have to compete with inward time and outward time, they are losing the sense of nature.*
- E Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?
- I *Just looking yesterday in the Netherlands, they let kids go outside every 45 minutes in school. This is one of the most successful education systems in the world. And they're letting their kids outside far, far more than ours. And we have this idea that if we let kids outside more and they have recess more that they lose learning time. But we can't. We can only push knowledge into somebody so fast. And what actually allows us to expand ourselves so we can learn more is by being outside into creating what was just taught. Then being able to come back in and learn more. Otherwise we have the illusion of teaching and learning and learning which is learning something for 30 seconds for a test which is not learning. But giving them more unstructured outdoor time between lessons, then we have this opportunity to really impart wisdom and knowledge and experience all at the same time. So I think our schools could have the change and priorities and it could not only increase our nature connection but also increase our ability to teach. In fact, it may. And research study after research study shows conclusively that strong nature connection leads to stronger academics.*
- E Do you think the children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.
- I *Yeah, I went to school here in Chapel Hill. We were allowed to go out on the blacktop for about 45 minutes in the morning and 45 minutes in some other point of the day. And unfortunately, I don't think that was very nature-connection strengthening. And this cool, like, I'm looking at these other schools in Chapel Hill. For example, Frank Porter Graham is a great example where the kids can play in a very organized nature in an outdoor classroom area. And it is much more effective at nature than playing hopscotch on the blacktop. So, I wouldn't say that my school even in my lifetime was a very effective learning tool for nature connection.*

In Poland, I noticed it was 10 degrees, consistently 10 to 15 degrees and they would have school children walking outside every day. And there was a school teacher up front and a

school teacher in the back and every child...I saw different ages on different days, but every day without fail, I saw several school groups walking outside.

When I was in high school, no middle school, I used to walk from my house to school. And it was a two mile walk. And I was called into the Principal's office and I was scolded because I was not allowed to walk to school because it was too far to my house. The school would not allow it period, so with the parent consent, it doesn't matter. Because they are technically responsible for me and I understand the challenge but I also see the bigger picture.

E As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?

I *Well, I think there are the computers. When I was a kid it was the TV's and the telephones. But there was not really the kind of computer used then. Not even that much of the gaming that we have now. So we have an additional thing to compete with. But even more than that, we live in a more afraid society than we did before. And a lot of that is being exacerbated by media.*

E Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.

I *Well, the fundamental similarity is that parents love their children. And parents want the best for their children, so if we can just figure what the best is for our children then that's what we need to do.*

E Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?

I *In order to have motivation you have to have hope. You have to have vision. You have to have an idea of how to move forward and you have to have the belief you are going to get there. In my generation, you have a lot of hope around recycling and there is a lot of conservation-oriented environmental education at that time. And we lived in a world where you could recycle a bottle and feel like a hero. But now I think children are getting a more realistic, but less hopeful message about what is happening to the environment. I gave a test to a group of teenagers. And at the very end of that test, the last question on the test in my view was the most important. "What do you think the world is going to like in ten years?" Almost none of them answered the question, which to me says something really significant which is that they don't...the question becomes so abstract that they can't even conceive of an answer.*

E Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?

I Yes and no. But nature connections are on a scale. And if we compare ourselves to people that lived a thousand years ago and through the now...but if we compared ourselves to where we could be the answer is absolutely yes. And I see it all over the place. I see people all among society... the Sierra Club...I see a lot of people take an interest in nature and often it is in a recreational sense or in a skill-building sense or the knowledge-building sense. There are a couple of pieces we could still bring in that are even more connecting, which is being able to have enough time to really deepen nature connection. It's something that is outside what most people experience in their lifetimes. But the little bit we can do is hugely powerful. And when I see people come together and form a community around nature, it's hugely powerful and there's almost a feeling of great necessity and urgency when I see people really come together and really begin to get what a community looks like. It is inspired toward nature. It feels like to not just understand nature but also to participate in it. Here, there is this great feeling of relief and joyfulness.

E How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?

I I have a theory out of all the cultures that have exploited resources at one time in their history, and that the longer a group of people has lived on the land the more they understand how to live in balance with it because it is what their experience has taught them. And we have technologies that are now making everything fast for us to destroy things. So...

E What does the term "indigenous knowledge" mean to you?

I As I was saying before, I think that the real thing to strive for is not indigenous knowledge but indigenous experience. I think that is what we are missing more of. We need this anthropology, but what we need more even than that is actual living culture and regenerative culture and we need to be able to impart that not through words but through experiences. Somebody asked me the other day, "I have a family that I want to turn on to nature". How do I kick start that nature connection?" And I had to say to him it's not something I can express to you in words, but what you have to do is seek experiences. And that's the only thing that is going to kick start it. So the cultural experiences are what we are really going for because what we have right now is not a functioning culture. We don't have a culture that we can raise our children off of and then have a positive influence on them. It's not working, what we are offering right now, so we have to reengineer cultures, and the best thing we can do is look toward indigenous culture because they do it really, really well.

I think that another thing I mean not just to be about indigenous knowledge is that, its sensory experiences. When we are walking in nature, everything is engaged. It's in our bodies. We are embodying that connection with the culture, with nature, and with the people. And that's not something we can transmit through a textbook. It's only something we can transmit through direct experience; a true surrounding with the proper kind of circumstances that can bring that experience about.

E How can the value of indigenous knowledge contribute to sustainable development?

I *Sure. It's a really key question. What we are missing in sustainable development is an understanding of how to impart the value of a different attitude and behavior towards our children. And if what we are looking to is changing a whole community's orientation towards nature, where do we begin? Where do we even start with that? We can't start with any one person in the community. We have to do it as a community-wide experience. And who are the experts about developing community-wide experiences that are nature connected? Those are the people that have been doing it for thousands of years. And the reason they have been continuing the same practices is because it has worked for them over the evolution of time. So the practices that they have used over generations are the ones that work. And it's been told over thousands and thousands of years. So it's not that we are looking to indigenous culture because that is the best culture in the world. We are looking to indigenous culture that has a technology that is embedded in their culture that we can look to learn from to apply to our culture. So we are not trying to copy native practices. What we are trying to do is learn from what makes native practice so effective at helping children to connect with nature and helping people connect with nature.*

E Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?

I *One of the things that Native American cultures have in common across the different tribes is a recognition of the power of elders, and the recognition of power when elders have a voice in society, then that becomes a leading edge for us to explore our values, and it becomes a model, not to exploit, but for everybody that has been involved. And so, Native American culture can show us how culture works, in this place in particular. The native people worked really deep to this land, to these plants, to these animals. And if we can pass that on then we give a sense of culture, of enduring culture, an enduring connection to those heritage species which people have relied on in our area. And we get the sense of not just Durham, but the sense that nature connection is the sole lineage. So, when I am walking in the forest and I see a deer, I'm not just relating to that deer in that moment. But I also understand the heritage species of the people of this land has connected to for generations and have required a respect for generations. Then my relationship with the moment changes.*

E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue?

I *I used to work at a nature center and it's going to go unnamed. But at that center, the people were asking for a Native American program, and I was excited to offer that. But, the management of the center decided not to do it because they felt it was not connected to their site. And the sadness there is that is that it is connected at all sites. So, this is our human heritage of who was here before we were. And it doesn't mean we have to find arrowheads. We already know that people have respect for that.*

E Should indigenous knowledge be connected in today's environmental education programs? Why or why not?

I *Yes. And I say yes with a caveat that it is done not as a cultural exploitation, but as a deeply thoughtful process. So yes, but it needs to be done in the right way, and with involvement from the indigenous community, but also with a lot of awareness. We are not necessarily going to bring in native songs unless the native people give them to us for that purpose, for example, or any other native practice. So what we are looking to do is understand and to teach understanding. But we are not looking to copy or photocopy anybody's life. And that's just the answer to the first part of the question.*

The second part of the question is "why", and why is not just because it's a historical lineage, not just because it's something that happened here, but also because we don't have culture. We have culture controlled by our society...controlled by TV and internet. But we'll have a culture that their elders or our mentors choose, and that even parents choose for their children. We don't have much to stand on that we're actually offering our children in terms of what they could pass on to their children, which they really feel like they own. And I'm not suggesting that we adopt native culture. I am suggesting that native culture shows us a blueprint for what culture should look like.

E If indigenous knowledge was connected in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?

I *Yes, because something native culture has that our schools don't have is nature connection. It's not a science, it's not. And the native cultures have this understanding that the way we teach children is not by testing them, but by teaching them by sending them out and asking them questions when they come back. It's about telling stories that inspire, and excite, and explore the mysterious in their meaning. And draw upon a child's own sense of meaning. So there are a lot of embedded tools in native culture that show us how children best learn, because these are patterned after our human psyche. It's patterned after really, really ancient design. And the native cultures have emerged out of evolution. They happen to work really well with the human psyche. So, when we are teaching children based on native culture then we have the sort of tools where which Jon Young calls the "Invisible School". Because children are certainly not learning so they can be tested and they are actually playing in nature and maybe they bring back a feather. And their mentor asks them a question about it, and they go out to try to find the answer. And that's what learning looks like. And the amazing thing is that uses other than a PhD level of understanding of Ecology, but it is integrated with art and science; just human ingenuity and curiosity. And so it's a very, very different model of education than what we are used to, but it is also very effective. They have the tracking program that tests trackers. And there are PhD level ecologists out in Africa that have been put against the African bushmen. So we are testing the best of our education, the best results of our education versus the best results of their education. And they are taking adult bushmen trackers and they are measuring them against a university trained Ecologist, and the bushmen trackers win everything the first time out in the*

ecosystems. This is an example of how indigenous culture has demonstrated a more fine understanding of education than what we have.

- E Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?
- I *There are several reasons. And some are very real. People are afraid of cultural misappropriation. And it is a very real concern because a lot of what we have done in the past has been very inappropriate. And so I think we should be afraid of cultural misappropriation. And I think we should be very cognizant of what we are doing. And it takes a huge amount of discernment in order to tell the difference between a respectful depiction of a culture and a misappropriation of that culture. And so it takes much more thought to do this well than it takes to teach many other things. We can certainly teach recycling education and we can do that without worrying about stepping on someone's toes. It gets much, much more dangerous when we start talking about culture. And when we start implementing elements of culture like giving thanks, then we really bring in a lot of elements of concern to the school system and parents and from kids themselves. And it's the simple act of giving thanks which is a native indigenous practice...a practice that doesn't belong to anyone. However, where I said before we are a very litigious culture and we are afraid of making missteps. So we have to work and try to learn and understand and to teach from a safe place.*
- E The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?
- I *Absolutely. I think it is very integratable. Again, I am going back to Poland because it was a recent experience. But I saw their integrated and Socratic way of indigenous European culture right alongside of what we would consider western culture. And it wasn't perceived as a difference. It wasn't perceived as an opposition. And I think that indigenous practices are human practice. Indigenous culture is human culture and it is the root of our culture. And it is not in textbooks. It is something we own that we created for ourselves because it was smart. Because it was the smart thing to do because we recognized it worked. And so what we are trying to do now is reclaim it and integrate it into the modern context.*

The key is to start by not seeing it as a being in opposition in the first place. To not see it as not being two different things, but as integrating two ideas together. You know, they have indigenous cultural practices overlaid where Catholicism is laid on top of it. But everyone there considers themselves Catholic. And there is something wrong with that in that they are Catholic in every shape and form, but they are also embracing the indigenous culture. And they are not seeing it as different, and that is what it takes is the mindset of understanding that they are not different and we are not comparing apples and oranges. We are actually comparing two very different ways of being and we are integrating and trying to find the

best practice. And this is a creative work. It's an act of art, creating culture is basically engineering, and what we're talking about is creating something that has never been done. We are not talking about recreating something that what used to be. We are talking about in the modern context when we have the modern minds, how do we create the best culture possible, recognizing that we don't have it. It's not in place, and what's in place is not effective. How do we actually raise our children that works? And that's a question we all want the answer to, and so we will work together where we won't throw out any ideas.

I actually think that there is something in the perspective that's in opposition for Western environmental education practices compared to native indigenous knowledge. I think that perspective is more internal to the environmental education community than to the outside community because if you look at it from a more distant perspective, it's all about connecting people to nature and all the different ways we can do it. The question is, how can we explore all these different avenues for connecting an individual's nature and how many options are possible?

- E If indigenous knowledge and westernized Environmental Education practices were connected to create a richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?
- I *Sure, and as I have mentioned the word regenerative sort of resonates more in our movement than sustainable. But yes, absolutely. The reason why we are bringing this cultural mentoring piece into environmental education in the first place is because what we want is not just to give kids a bunch of different neat activities that they can learn a little bit from, but we're actually looking to give them a framework that they can pass along to their children in a way that is embedded inside them in a way that they are excited about so we have to raise leaders that are invested in the values that we are passing on and we have to give them the skills to pass along values as well as to teach information and that's why culture is so important.*
- E In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?
- I *I think that ancient cultures are not that different than this culture right now. Which is that the most busy people are the adults and the children are left to play with the elders, so the elders have the ability to pass on and to listen to and to care for the children in a way that adults don't have time for. And it's that very powerful and very precious connection that is going to be the root of memories and the root of understanding and so elders really represent the ability to pass on to children what the culture is all about. And in this culture, in our modern day, parents are busy and it is often the grandparents or the elders or the church community that is able to listen to a child's stories and is able to answer their questions or ask questions and find out more about what the child's perspective and interest is. And it's not that parents are not doing this too, but it's that parents are busy doing the work of helping to hold the household together. So it's the elders that we can look to help*

raise the children and perhaps even more importantly it's the elders that we can look to help the adults of the culture to know what direction to head in order to live a more fulfilled life.

- E According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement? If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?
- I *The answer to both questions is yes and I will explain why. We have this great resource that we are quickly losing and that's the wisdom of elders. We're losing it for 2 reasons. One is that elders who know how to be elders are dying out and the other is that in order to be really an elder we have to live a life that earns us the right to say we are an elder by the time we get older. And that takes such a commitment to ethics and to values and to knowing where you are going and to head in that direction so that when you get to be an older person you have a lifetime of knowledge and wisdom and stories to share. And that has to be cared for by the community. In other words, not only does that elder have to carry themselves in a way that carries them to that place, but the community has to midwife that person through the transition of becoming an elder and we are losing those people and we are losing the knowledge of how to do it. And as we live in a culture where there is so much emphasis on youth and beauty and on what you can accomplish in your young life and there is so little understanding and appreciation for what can be accomplished through the art of growing older. And we have people who don't understand in themselves what they have to give. And so it's a huge transition to bring people to the place of being an elder and it takes more than one lifetime. It takes one lifetime of incredible dedication plus a whole community around that person and those people, we are losing them fast. And so the other problem is that in order for the transmission of know and wisdom to happen and experience and stories and questions, that has to happen in the context of the young people being interested. And the problem, the same problem we have with the nature connection we also have with the connecting to our elders is that they have so many things to compete with now and children don't understand the value of their elders. But even more so than in the past, elders can be drowned out by other things. And so we have a group of people who could be potential elders but nobody around them is recognizing what could happen because we are being distracted by so many other things. So another reason why a program is important is that we are bringing the elders back into the place that they are able to share what they have. We are helping them understand what they have to give and we are also helping the people around them to understand what it means that they are an elder and how to benefit from them. And that's why we need program because culture is not doing it for us.*

Appendix H: Transcript for Interview with Interviewee #5

Interview with an Environmental Education Director Orange County, NC on February 11, 2014 – 12:55 pm to 12:40 pm

(E = Eric as Interviewer, I = Interviewee)

E Do you believe our world is in an environmental crisis? Please explain.

I *I do. I think the most alarming trend is the population rise. But the amount of resources consumed per person in industrialized nations is equally important because a lot of the population rises are happening in the non-industrialized countries. But an inordinate amount of our resources are being consumed by industrialized nations. So I think we are seeing natural areas disappearing or we are seeing that the natural areas that are left are being fragmented and degraded. We are also seeing one of the greatest extinctions of the history of the world. I don't think there is any other way to look at it other than an environmental crisis.*

E What are some ways we can make our world a more sustainable place to live by regenerating its resources?

I *Well, I think the first thing you have to do is while regenerating resources is important, you need to protect the resources that you have now as well. With that being said, it means being more cognizant and efficient in the way you use the resources. In terms of regenerating resources, I don't know that for instance if you can create an ecosystem that you can restore it. I don't think you can degrade ecosystem A, put money in the ecosystem restoring Ecosystem B, and have it be offset. So, I think that sustainability comes from protecting and using wisely what we currently have. Regenerating other resources will help, but that means it is a secondary goal. The primary goal needs to be respect and efficiently using what we currently have.*

E Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.

I *Well, I am biased because I am educator. But I think that I am thinking about sustainability being a long term goal and there is nothing you can achieve right now. Sustainability is only achieved over decades. So I think that educators, teachers, and anyone who plays a role in an education do not formalize education. Certainly parents; I think they have the most potential for impact of long-term sustainability. I generally think that most adults are mired in their ideologies, and so I don't see politicians being a good way to change ideologies that make change the way we act through making laws. I think if you want to have sustainability, you have to change it through education at a young age to begin with and going on through a lifetime.*

E Do you believe children have become more disconnected to nature today as compared to the past? Please explain.

I *I mean I know that is a storyline that is catching more headlines than it used to. And it wouldn't surprise me if that is the case. I think that, I mean I work with kids in the outdoors all the time, and I think that they may not have the opportunities to spend time in nature, but when they get those, they are still able to connect in ways that I did when I was kid. I'm not sure we are providing them with the opportunities to connect with nature that they had in the past. So if there is a disconnection there, I think again this falls on the shoulders of the adults more than the kids. Because when I get a fifth grade class out here, they are just as enthused than when I was in fifth grade.*

E If you agree with the previous question, what are some ways we can reconnect children to nature?

I *I think where the education system is falling short is teaching kids about their back yard. I think kids learn more about the Amazon rain forests than they do about the forests in their back yards. They know more about polar bears than black bears. And the list goes on and on. And so, I was on the phone with a teacher last week, and she wanted some ideas on how to teach her kids about ecosystems and such. You know, she wanted to take field trips to show them some different ecosystems. So she was going to drive them to the beach. And I think that's cool, but I recommended to her, "Why don't you take the kids somewhere in the piedmont? These are the ecosystems they come in contact with every day." I think where the public education system is missing out is not enough of a localized focus; an educational pedagogy that focuses on native flora and fauna and local ecosystems. Because we are giving kids the impression that the only things that are valuable in nature are the poles or in the tropical rainforests and whatever they see in their backyard is just something just waiting to be developed.*

E Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.

I *Well, again I hate to generalize here. I think it depends on the child. I think in urban and suburban settings, no. But I think kids who grow up on the farm and their parents are putting food on the table by growing food to sell, or raising cattle; I think they see it much differently. And so, one thing I will say is that we have a higher percentage of our population that lives in urban and suburban settings than 50 years ago. A smaller percentage of our population is now farming. So I think it is probably yes, fewer children are connecting or seeing nature as an integral part of their community because of the setting they live in and the education that they are getting from their parents.*

E Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?

I Well, you know, I'm being non-committal here. I think it is the same it was when I was a kid. When I grew up, I didn't learn about the forest in my back yard. I think it depends on the teachers. I think there are some fantastic teachers doing amazing things. And there are more resources, there are better curricula, and there are more opportunities to go to more environmental education centers to connect kids. But I think at the same time, the logistics of testing and the pressures that it puts on the schools prevents them from utilizing those opportunities. But the teachers that want their students to connect to nature find a way to do it. So I think that it is as much a...that the university system, it's failing our pre-service teachers in equipping them to engage their students in that way. That's where the failure is happening.

I think it a misconception that kids should go outside and learn for science and not for anything else. There is nothing you can't teach indoors that you can't teach outdoors and in a way to engage different types of learners. Certainly not every day. Every class should not be outside every day, but it needs to be an integral part of how our teachers teach.

E Do you think the children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.

I Certainly not during the school day, absolutely not. And you know after school and on weekends, that is so hard for me to say because I grew up in a very rural community and had very few after school and weekend opportunities. And now I live in a community where kids can have a different lesson or sport every night of the week. And so it's hard for me to say whether after school and on weekends they have less opportunity than they would have 30 years ago. Because I comparing apples to oranges.

E As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?

I Well, societally, I'll go back to the answer I had earlier in the shift in populations from rural and agricultural areas to more urban and suburban. So, I grew up on a farm, I worked on a farm, and we always had a garden. I lived out in the country and I played outside and that's the way I did things. I think that one way that a lot of people connect with nature is through food. It's a great entryway for kids to help them understand. I think that people are growing...the availability of food and as cheap as food is, and the fact that you can go to Harris Teeter and get anything from anywhere at any time of the year; I think people are becoming more and more disconnected with food. Primally, humans most basic connection with nature is that connection with their food supply, whether it was going out and hunting, or farming, or gathering; the most basic and primal connection between humans and nature is that connection where humans relied on nature to survive. And that is being...that certainly...we're drifting further from that state.

E Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.

- I *I think the similarities in the society are whether it's apparent or not, humans are integrally tied and dependent on nature. That will never change. We may cloak that and make it more difficult to see, but that's always the same. But you know I would also say that...I mean Earth Day has been around since 1970 and so there has been this environmental awareness over the last 40 years...and so, it has been building and it's looked differently. But that is certainly a constant thread and underlying theme to a lot at least what one faction of society has been doing for the last 40 years.*
- E Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?
- I *I don't think so. I think kids that I see; they enjoy connecting to nature even if it is the Amazon Rain Forest or polar bears. They get excited about it. And kids are always going to be kids. They are always going to love the animals and think about the things that crawl in the dirt at the same time think it's cool and gross. They will be interested enough. I think that is the motivation right there as long as they are provided with the appropriate education to understand what that motivation should turn into.*
- E Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?
- I *I definitely do. I think there is a lot of people who are environmentally aware, environmentally conscious that spend their weekends hiking instead of watching movies. You know, I would say The American Indian Tribes. I don't know much about them, as much as I probably should, but the stereotype is that they remained very well connected to nature. They remember that, and the steps that they took to live in a way that they are connected to nature.*
- E How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?
- I *Well, you know, I think there are examples that are kind of cherry-picked that are used a lot of times. And I have used them. I don't know how folks would see that. An example that I used is there is lore that the Cherokee would use all kinds of different things they found in the woods. They would pass by seven plants that were useful before they harvested one. And that's lore. I don't know whether that's the truth. I don't know. But there is certainly lore about these indigenous cultures that can be used, and I think we certainly have to be careful that the lore that we use is...I think anytime it's lore you should tell the people that its folklore and we should be careful about how we use those types of stories so as to not stereotype or paint a false picture of an actual real group of people. So, I'm careful with using those things, but I always do...I mean, 300 years ago whether there were American Indians or early European settlers to this area, they had to understand the correct way to manage their resources, natural resources because they couldn't go buy lumber at Home Depot.*

E What does the term “indigenous knowledge” mean to you?

I *Well, so...I ask for some clarification before this. I would say indigenous knowledge is a person’s understanding of their heritage both cultural and natural heritage.*

E How can the value of indigenous knowledge contribute to sustainable development?

I *Well again, I think that if you go back far enough in your cultural and natural heritage, you are going to find times when people were trying to figure out how to utilize natural resources in a sustainable way because the harvest this year was good, but only if it did not come at the expense of the harvest for the next three years. I think that’s probably the best way to contribute that type of knowledge that can contribute to sustainable development.*

E Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?

I *I definitely think it does. In fact I use this in some of our programs here. We have a program where visiting fourth grade schools come and learn about three different Native American tribes that would have lived in North Carolina in the early 1700’s during the time of increasing European settlement. They learn the story about the tribes but we connect each of those tribes with one kind of plant that they would have used. Now they would use lots of different things, but we use that to tell the story to kids that...you know they couldn’t go and buy rope. They had to wait until November and cut Indian hemp, and cut it, and peel it, and twist it into rope. The kids in our program actually do that. I think we can use that...our knowledge of how American Indians and native settlers or early settlers would have used plants and natural resources to connect kids back to nature. To help them see something. That plant there is not just some plant that produces food for you. That plant there is something that is extremely important to American Indians to North America all over the country.*

I always get very good reviews on that program, so that is a good thing. It’s not aligned with fourth grade science. It’s aligned with fourth grade social studies. The kids come here and learn a little bit more about how Native American Indians lived. They learn about pre-tribes in North Carolina, so.

E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue?

I *I do. I have an opinion on it. And I’ll tell you. This goes back to me thinking that kids need to learn more about what is in their backyards. So, I don’t think that kids may look back and say, my heritage is Scottish and English. But their families may have been in America for generations and so, those connections that spark interest may not be there if they weren’t passed down. But there is no reason that kids born in North Carolina can’t start to build a new indigenous knowledge regardless of where 5 generations before them came from. So*

that's what I try to do here actually is to encourage teachers and kids to learn to acquire some indigenous knowledge about where they are now.

E Should indigenous knowledge be connected in today's environmental education programs? Why or why not?

I *Yes, for the exact reasons that I said earlier. I think if people are going to connect better to an environmental education program, the hope is that you are connecting people to nature. And I would take it a step further to say that with the hope with having some sort of connection after that. The acquisition of knowledge is not enough. You need to act on that knowledge. I think the best way to do that is think local, and act global. But more important, I think we need to think local and act local, because there is not enough people acting local.*

E If indigenous knowledge was connected in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?

I *I do. I think it will provide them with opportunities to connect with nature when they are not with an environmental educator. When the teacher takes them out behind the woods behind their school and teaches them something, and sparks their interest, then when they walk out in their back yard, they are going to engage with something that they have a little bit more of an understanding of and the different ways that they discovered on their own. It doesn't matter if they don't know the name of the tree or any of that. There is this other connection that needs to happen some times because of knowledge and sometimes in spite of knowledge. But when the knowledge is local, when kids have knowledge of what is in their backyard they are much more likely to see value in it.*

E Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?

I *Well, in terms of environmental education programs, I guess...environmental education centers and environmental educators see their role as filling in the gaps. And so, for instance in fourth grade, kids learn about NC History and American Indians and things like that. So, it may be that environmental educators say, we don't need to cover that. They are getting that in school. So I wonder if that is the case?*

The other thing I would say is that there are very few opportunities for environmental educators to look at environmental education as a whole. Everybody in an environmental education center is narrowly focused on teaching whatever is most aligned with that organization's mission. So, you know, we will be focused on plants and the NC Zoo has environmental education programs on animals, definitely not native, but non-native animals. So there are not a whole lot of opportunities, even though there are not a lot of people who would call themselves as environmental educators to look at environmental education as a whole. Versus a school setting, they are looking at curriculum from K-12, and so they see gaps that they are going to try to address. I just don't know that people...for me

the reason we do a program about American Indians is because to me it seems a natural fit. We are not an environmental education center that has anything with education about American Indians directly in our Mission or Strategic Plan, but to me, it is a really engaging way to connect kids with plants and ecosystems that they would find here in North Carolina.

- E The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?

- I *Well, I may not have to say I agree because what I think what westernized formal education needs is a lot of work because it is...I think you are looking at the knowledge from indigenous cultures being about knowledge and education, and formal education is only, you probably know because you are a teacher, is only part about education and knowledge, and so inherently, there's a lot that can be learned about...if our education system was about teaching and learning, it would look much different than what it does now. I'm not suggesting we get rid of all grade levels and things like that. Those are all very...they are there for a reason, but eventually you have to say the end goal needs to be education and learning, learning among students, not measuring.*

- E If indigenous knowledge and westernized Environmental Education practices were connected to create a richer environmental education framework for children to more completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?

- I *Absolutely. Yeah, and you know, a lot has changed from when I was a kid, and there are more environmental education classes that kids can take in high school. You know, there are some interesting schools that have a very strong focus on nature and the study of nature and being in nature. So, I think it would definitely do that because it is...if nothing else, showing children that it's important. If you put it in school it's important to at least consider. And it would be, you know there lots of kids who go through several years of school, an entire precollege experience without ever being provided opportunities to connect to nature from their teachers and most times those are the same kids that are not provided with those at home either. And so, I absolutely think it is needed.*

- E In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?

- I *Well, you know that comes...that's another way our society has changed in that you don't have multigenerational households anymore. And that used to be natural, and there are still cultures...I am very good friends with a family; she is from Honduras and he is from Mexico. And the connection to their family is different than what you see. I don't mean to stereotype, but I am only using them as a specific example. But their connection to their family is completely different. They are part of our family and they have taken us in as part of their family. That type of familial connection is not what we see anymore. It used to be that, you*

know, grandma and grandpa couldn't get around, so they moved in with mom and dad. And that is unheard of in our society now. That's, I mean we need to worry with connecting with one generation to the next before we can think seven steps down the road. I think that's what is missing, that kind of familial connection.

- E According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement? If yes, do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?
- I *Absolutely. Yeah, absolutely. I mean this mirrors this organization as one where we have several people who have been here for 20 plus years and they are some of the original employees of this organization. They are retiring and there is this fear that we are losing this institutional memory. So, you know, there's always a need to capture that. And I think that's parallel to what you are saying here is that you want to be able to figure out a way to better capture that, those stories, institutional memories that relates to a place like this. But, yeah, so...*

And are you familiar with the Southern Oral History Project? This project came out of the University of North Carolina. There are a lot of people interested in capturing the oral histories of folks. This would be a nice connection to make with this project. I think, if nothing else, to help understand what are some of the lessons they have learned. As you move with this Piedmont Wildlife Center Project and think about this elder – mentor training program...thinking about ways to, I mean, talking with them about it. How do we capture these oral histories, because that is what you are talking about. There are ways you can...there are best practices. I don't know what they are, but maybe worth checking into. It may be out of your time to get this written, but to actually apply this after that, it may work for it.

Appendix I: Transcript for Interview with Interviewee #6

Interview with a Public School educator/Member of Occaneechi Band of Saponi Nation Orange County, NC on January 19, 2014 – 3:30 pm to 4:05 pm

(E = Eric as Interviewer, I = Interviewee)

E Can you tell me what your affiliation is with any Indian tribes in NC?

I *My family is Saponi from this area and up through Virginia and a little bit down east. When I was younger I definitely heard a lot of talk about the Indians and black folks mixing down east. That is how they came up into this area. There was already a bunch of my family up here. Many of the nicknames of my great grandparents and great-great grandparents you could tell that the black folks in the family had given them Indian nicknames like “red” or something like that to kind of pick on them or give some other sort of indicator that Oh, those are the Indians in the family and that’s why you look this way. My parents do not have a traditional black person appearance. no not a white person’s apparently there so when I go somewhere especially go down East which is so strange I’m immediately asked if am I going to a pow wow. In Robeson County I’m asked what tribe are you? You kind of look like me but you don’t. When I was in Greenville people showed me pictures and would say man you look like my brother. We’re in a different tribe, we’re Eno **Occaneechi** people.*

E Do you believe our world is in an environmental crisis? Please explain.

I *It definitely is in an environmental crisis. I think that society as a whole has lost its way with being good stewards of the resources that are provided. And when I say provided they are not provided by us they were before us and will be here after us. But if we are not good stewards of them then these same resources will be changed into something else that maybe we won’t know how to use.*

E What are some ways we can make our world a more sustainable place to live by regenerating its resources?

I *One of the biggest things is I hope there is a responsible aquaculture movement. I hope there is a responsible farm to table movement with how people eat. That is how we used to do it. We used to grow our own things. We used to fish sustainable. We used to understand how oyster beds work. We used to only cut off one claw of a crab because we knew it would regenerate. But we don’t have those same practices going on in a wide spread scale anymore. We have a lot of dirty farming going on both sides whether it is aquaculture or regular agriculture. We are not concerned with what we eat. We just want more and more and more. We don’t understand the stress that puts on the food supply.*

E Who are some of the most important people to influence a long-term change for a sustainable future? Please explain.

I *Well I think two groups might hold the mantle. One are the responsible scientists and environmentalists by trade we have now but the other group that I think we are losing are what I think are the original environmentalists which are the farmers. These people know how dirt works they how veg works, they know how the ocean work (when I say farmers I also include fisherman in that). They know these things. They know these practices people have used to hundreds of years. But know there is a different way to do ti. I'm not saying anything about Monsanto or ADM, those companies have done well to help get soybeans. But lots of those practices have results in pesticides that we did not need to introduce into our environment. And caused all sort of resistant in the crops. I don't think we really know what we are doing to our environment or ourselves in a long term basis. But I do know that if we use those old practices they are not going to harm us.*

E So where do you think those practices would come from? Who those still has the knowledge of those practices?

I *The old people. The old people that definitely have it. I see reinforcement of that and it makes me happy when I do see that. I was reading something in the Economist the other day about truffles. That truffles production in France and Italy is down. Let's say production is something that occurs naturally but they have over foraged. And there's over 20 some varieties of truffles in the United States and of course old people back in the old world they used to use dogs and pigs to do it. We've taken that technology and we've been able to translate into a digital format where you can have an electronic device be able to predict whether or not there will be truffles found in a particular area. Well that's translation from an old world way to our new digital conventional way that we do things. The same thing can be done what crop rotation if people do that. I read another article about Monsanto is actually going into traditional selection rather than saying hey, we're going to completely bioengineer everything. Where they can select for at a quicker and faster rate because they have the millions and billions of dollars. We can go ahead and do all these selections a lot faster. And that's the old way of doing it. I think its good that stuff is being used and translated. But the question is how do we know about these things? Word of mouth, the oral history doesn't have the same residence in our digital-technology based world as it used to and the old people dying off, we're losing that knowledge and I do it for my family too.*

E Do you believe children have become more disconnected to nature today as compared to the past? Please explain.

I *100 percent... they have almost no context of the past or connection to it and its to their detriment*

E If you agree with the previous question, what are some ways we can reconnect children to nature?

I *Education and the way you have education kids are going to know to go. There's going to have to be programs the parents are willing to bring their kids to some sort of education or going to have to be some involvement with the school program. Public education is a great*

way to have to have that door there as well. It's going to have to have the parental involvement. It's going to have to be people in the community who know better who will have to bring it to the kids or else it going to be lost period.

E Do you believe that today's children see nature as an integral part of their community as much as you did when you were a child? Please explain.

I *Not even close. I don't know one kid I teach right now that I could take into the woods and they could identify one plant or one tree. That's ridiculous.*

E Do you think that today's public education system is disconnecting children to nature? If so, in what ways do you see this occurring and causing the disconnection?

I *Yes, definitely. Nature used to be an integral part of the public education system. When I was in middle school I remember my parents would send me to this thing called Nature's Classroom. It was an enrichment for AG students. And that's where we went. We sent to Reidsville. We stayed out in the woods. We had a forging in class. Yeah, we don't have those opportunities anymore. That's what they need.*

E Do you think the children in schools today have as much time to play and learn outside as compared to when you went to school? Please elaborate or give examples.

I *They don't have close to the time. There is no mandate that they have all the hours of PE that I had when I was growing up. They do not have the mandate for at least 30 minutes of outside time. The kids are being stuck in front of these flat-screen 'boob-tubes' for lack of a better term and just sitting there wasting away. They need to get out and break some sticks, fall down in the dirt and see what it tastes like.*

E As compared to the society in which you lived as a child, do you believe today's society has changed in a way to keep children from experiencing nature in the same way that you did? What do you believe are the main societal changes in comparing the past to the present?

I *Yes, definitely. I know talking about society I think about the community in which I grew up. People would think it was odd if there was a family that had their kids stay indoors all day on the weekends or when they came home. They would say what's wrong with that family? Why are the kids indoors all the time? Society expected you as a parent to put your kids out there. But now it's not like that anymore.*

E And why do you think that is? What do you think are the main societal changes in comparing that past to the present?

I *I think it's because of lethargy and apathy....I think its lethargy because everything has become so instant... I can watch this program or I can get this information instantly from the computer and there is no need to experience it; I don't think there is a lot of value being placed on that experiential learning that a kid get from playing. We do know that kids learn*

when they play. Give them a better classroom. Nature is a better classroom than the four walls of their room.

E Do you see any similarities in today's society that children live in as compared to the society you lived in as a child? Please give any examples you can to substantiate your claim.

I *I don't see as many similarities. I still see this a society being a very individual based society where it's a me me me mentality but as far as similarities, I really don't see much of the same. I am sure every generation likes to think that they know they have worked harder than the ones that are following them but I definitely don't see the same worth work ethic or values.*

E Have today's generation of children lost the motivation to sustain their world as compared to past generations of children? If yes, what is causing the change in motivation?

I *They don't care, they waste stuff; that's the biggest thing I see; they think that everything is just going to be replaced put right in front of them because of this microwave-society mentality. I think that's what's causing that change in motivation, they don't care.*

E Do you think there are still groups of people in our communities that do appreciate nature and live connected to it? If yes, who are these groups of people?

I *The old folks who live in the country still appreciate. They're still with it. That's where I get my eggs on a good day that's where I get some great vegetables in good meat. Somebody harvested it from the woods or somebody got it from their farm. There's a movement on the urban scale too with a lot of these hipster types to do something. They are at least learning how to can, but they certainly don't know how to slaughter a hog or even been to see a hog get slaughtered or see where their meat comes from. What I think there's a very small pocket that appreciates that but it's almost too late because we're starting in their 30's and 40's. They need to start when they were younger.*

E How can indigenous (native) cultures serve as one good example of society's communities that sustain and protect ecosystems through wise resource management?

I *The native people didn't necessarily believe in an individual ownership or property rights or anything and it was your responsibilities to be a good steward not just for yourself but to the Earth itself and to your fellow brothers and sisters. So do that they understood crop rotation before European practices really took stronger hold here. They understood about aquaculture. They understood how to be responsible about it the understood also what to eat. They knew that eating oysters at the coast would be more profitable for them than eating rabbit every day. They understood practices so much better and I think that's what a serve as good examples because I think they represent the bastion of responsibility.*

E What does the term "indigenous knowledge" mean to you?

- I *Indigenous knowledge... when I hear that phrase makes me think about the old people and their old ways. It's kind of time tested knowledge. It sounds good to me.*
- E When you say old people you are not just talking about Native Americans here you're talking about everyone I'm assuming.
- I *Yeah, I know in my family they pass it along to the black folks who were kin. They know. I still know those tricks of my great grandmother. When I was a little kid, my mother tried to hammer as much of that knowledge into me as possible so that some of it would stick.*
- E How can the value of indigenous knowledge contribute to sustainable development?
- I *It all contributes to sustainable practices and that's the sort of development we need. I think it's the antithesis of the strip-mall mentality.*
- E Can the value of indigenous (Native American) knowledge serve to reconnect our children to nature? If yes, how can this happen?
- I *It definitely can reconnect them. First I think they will think it's fun because they'll see that WOW just the stuff I pass over that's just around me everywhere can do all these things. I think they will understand that the world is a lot larger place than what they understood before in that they're more connected to the world as well so I think it will completely increase their view. How we get them to do it, I think it is going to have to be with catchy things to help them understand food sources better. To help them understand medicines actually better out there. For me, my wife has no problem when I say I am going off for an hour. I'm going mushroom hunting. I've done that for years. She understands when I'm out there it's quiet, it's peaceful. Mushroom hunting is a great time. I think things like may work to get kids to reconnect. But I'm not sure what the complete answer is to get it to really stick.*
- E Indigenous knowledge is valuable within localized cultures, but it has been historically under-represented in Westernized environmental education programs and systems. What is your opinion on this issue?
- I *I think because indigenous knowledge isn't something that came out of a lab, that it may be under-valued. We see this not only in environmental science, we see it throughout the arts, we see it throughout everything. Because it did not come out of this proper, sterile environment of the lab that it's can't be as valuable. And I think that's part of the problem. And it as to do with the bias. These people were not formally educated, how do they know what they are talking about?*
- E Should indigenous knowledge be connected in today's environmental education programs? Why or why not?
- I *I don't know because I don't even know when they are separate if they are on parallel paths. Indigenous knowledge is on a path of ultimate sustainability whereas the traditional*

environmental education as I understand it does not necessarily utilize that same thought as the basis for why a theory might work for sustainability. I think because the epigenesis is so different for those thoughts. I don't know how connected they can be. I 'm trying to visualize whether or not in my head if I see them as parallel or if I see them as sometimes overlapping. I think something they might be overlapping but the epigenesis is so different and I think the end result right now as I view it, that it's so different that it's difficult to connect them and I see why it someone would say it would be difficult to blend because I don't even know if the connection is there. At best they run separate and parallel. At worst they cross and never meet again.

I'll give you an example. If someone got stung by a bee in my family growing up, the initial thing is to spit tobacco juice on it. Well the way society is going now, you are not going to be able to get tobacco anymore. It is something you see in a museum. And that's why I say I don't know if it can be connected.

- E If indigenous knowledge was connected in today's environmental education programs, do you think it would help reconnect children to nature? If yes, how would it help?
- I *Yeah, if it could be I do think it would help reconnect children to nature because children wouldn't view nature as just this thing that maybe is written about in poetry or this place where you live rather than understanding the essential quality of the relationship that we have with nature, the Earth, the environment. That you can't be disconnected from it as much as you want to think you can be disconnected from it you are part of it as much as it is part of you. So I think that would be good if it could theoretically be connected between indigenous knowledge and this traditional idea environmental ed. Yeah, I think it would reconnect because it would give them a better perspective of what really going on.*
- E Gradually, the value of indigenous knowledge is being integrated in government activities, but it still remains largely unrepresented in environmental education. Why do you think it remains largely unrepresented in environmental education programs?
- I *I think it's a bias because it is not look upon as being formal education. It is not looked upon as having the same statue. I think some people turn their nose down on it. And it's to their detriment.*
- E The knowledge from indigenous cultures offers many valuable practices that could be integrated into the environmental education standards of Westernized formal education as our current and future generations search to improve sustainable and regenerative practices. Do you agree or disagree with this statement? Why?
- I *Agree... it is what I have been saying the whole time.*
- E If indigenous knowledge and westernized Environmental Education practices were connected to create a richer environmental education framework for children to more

completely reconnect to nature, would this new framework help to create a more sustainable future? Why or why not?

- I *Yeah it definitely would. And now I'm thinking about the connected part. I guess one of the ways it would have to be introduced as a framework for children is to put it initially in those terms that are the Western environmental terms to be able to introduce that to them. In that way there would be a new epigenesis for them. Not the one I'm accustomed to now. The way I looked at it there were 2 paths that were not the same that could not be blended or connected. But I guess for small children if you started out that way it could be done and I think it would work as far as a sustainable future because that is the way they would know rather than having competing arguments. They would know that way.*
- E In order to connect to the next seven generations of people within your society, what are some of the ways elders teach their children?
- I *How there are things that can heal you all around you. I guess that is what I was taught and given. I'm kind of at a loss. I'm trying to think about how other people do. I can only think about the experience I have in that situation. I guess the healing thing is what I was told. My mom tells me about you can eat this type of dirt or clay and it will settle your stomach if you have a bad stomach. If you are constipated, if you eat this type of plum that grows out in the woods. Certain grasses that can or can't be eaten. And that's what resonates with me today why it would be good to think about the environment. I don't want all these things that heal me to go away.*
- E According to the Alaska Native Science Commission (2006), Native Americans believe "When an elder dies, a library burns". For our information libraries to stay intact the proper transfer of intergenerational knowledge may help to create and maintain a sustainable network of communities for the benefit of the entire natural world. Do you agree with this statement?
- I *Yes. It's got to be. The initial statement "When an elder dies, a library burns". Exactly. That is more than a wealth of knowledge. Oral tradition or oral history dies with that person if it has not been passed intergenerationally.*
- E Who do you see as mentors in this world right now, who are the mentors?
- I *Mentors have got to be the people who willing to create some sort of bridge. I think you would have to be one of those people who would have to be a mentor who is willing to create the bridge to make sure there is an intergenerational transfer. I think also to raise the status of indigenous knowledge there will have to be somebody to be an intermediate between the indigenous knowledge to the more Western version of it. There is going to have to be people there and I see those mentors in that. They have to connect across the elders to the kids to the parents to the society as a whole. They have to play the liaison to everybody. That's how I see it.*

E Do you believe the integration of an elder-mentor training program within the existing framework of an environmental education center is the proper approach to take in order to preserve our information libraries and pass them on to our children in order to make our world a more sustainable place to live by regenerating its resources?

I *I wouldn't just say that. I would say it is integral. I don't see how you are going to do it otherwise. I don't think it could work without that. You're going to have to have it when I think about when I had those experiences growing up. That's how it was. I used my mom. I did not even think about it. I was just telling you about how my mom would explain those things to me at the time. That's exactly what that was. It was an elder-mentor. Yes, it is integral. It's essential.*

I'm smiling sitting here thinking about it. That's the experience I had growing up with that elder-mentor relationship. I wish I had been able to tape these things. My sister and I have regretted this. We were too young we did not know any better. I wanted to be able to hear the stories. My mom would explain something to me. She would say 'Grandmother says this will to this' and we would ask Grandma about it and she would tell us a story rather than telling us go get this tree and to this there was a story there. That is the coolest things on Earth.

Appendix J: WING Program Strategic Plan - Short Version

Introduction:

The proposed program *WING*, Wisdom Inspiring the Next Generations, is a training program where community elders mentor other adults. The primary focus of the program is to connect people across different generations and cultures in a way that promotes a regenerative approach to the interaction between people and nature. Through the transfer of intergenerational, cross-cultural, and indigenous knowledge, students of the program gain a deeper appreciation for their community and environment that results in a desire to regenerate nature and leave the Earth in a state better than it was found.

Modeled on the teachings of the *Art of Mentoring* developed by Jon Young, the *WING* program connects its training to patterns in nature. The foundation of these teachings utilizes the *Eight Shields* model in which each cardinal direction in nature represents a focus of experiential learning (“Eight Shields Institute”, 2013). Refer to Table 1 for details.

Table 1: The Eight Shields Model

| Cardinal Direction/ Shield of Teaching | Focus from Nature |
|---|--|
| East Shield | Promotes nature awareness at both the physical and the intellectual level |
| Southeast Shield | Teaches the principles of leadership, communication and self-inquiry |
| South Shield | Trains in the art of wildlife tracking and pattern recognition |
| Southwest Shield | Educates on edible and medicinal plants |
| West Shield | Studies of interrelationships between all of Earth’s inhabitants through ecology and community study |
| Northwest Shield | Incorporates an appreciation of indigenous cultural studies into outdoor living skills |
| North Shield | Prepares people to live intentionally with the Earth through primitive living and group wilderness survival skills |
| Northeast Shield | Listens and interprets the language of birds to increase awareness skills and intuition development |

There is no program comparable to *WING* offered in the southeast region of the United States. Organizations with similar missions already exist in other parts of the US including Vermont, Idaho, Washington, and California as well as internationally. With three major universities as well as many other schools nearby and the Research Triangle Park centrally located, many professionals and students interested in environmental stewardship and sustainable practices can develop a deeper and more intimate relationship with the natural world. An added benefit of the piedmont is that it is home to five out of eight Native American tribes recognized in North Carolina. There is a need to build a community of people that understand the importance of sustainable practices.

Vision Statement:

The vision of the *WING* program is to inspire long-term relationships for collaboration across generations to pass knowledge between one another that helps serve both communities and nature alike.

Mission Statement:

The mission of the *WING* program is to help students build a relationship with themselves, with their community, and ultimately with nature in order to connect multiple generations within the community to their natural surroundings and work together to leave the Earth and its resources better than they found it.

Program Values:

The hosting organization recognizes that the voice of all people is valuable from the elder to the children. A core value of the *WING* program is to encourage the input from everyone across all cultures and all generations by creating an environment of respect when people speak and an appreciation for what is being said. It is also a belief that everyone possesses valuable skills. The *WING* program will honor these skills and foster them into gifts that can be used to service the community and nature.

Program Goals:

During the first three to five years of the *WING* program, goals targeted to expand participation in the program include:

- Extend the initial *WING* program to provide additional levels of training for returning participants.
- Integrate the existing programs for children offered by the host organization and the *WING* program.
- Identify organizations in other regions with connections to additional American Indian tribes to implement the *WING* program across North Carolina.

SWOT Analysis:

Analysis of the external and internal factors impacting the implementation of the *WING* program led to the development of strategies to manage them. Refer to Table 3 for complete SWOT analysis. Some trends to capitalize upon as opportunities to provide a positive impact include:

1. The North Carolina piedmont region has a culturally diverse population with several universities and the Research Triangle Park drawing people from around the world to the area providing a large pool of possible participants to solicit. Additionally, five Native American tribes reside in the region including the Coharie, Haliwa-Saponi, Lumbee, Occaneechi Band of Saponi Nation, and Sappony.
2. The No Child Left Inside Act of 2013 (H.R. 2702) is currently under review by the House Education and the Workforce committee. This bill proposes changes to the Elementary and Secondary Education Act of 1965 to improve environmental literacy in order to prepare students for education and careers in the environmental fields.
3. Organizations with similar missions already exist in the other parts of the US including Vermont, Idaho, Washington, and California. By implementing and connecting the *WING* program to these organizations, it provides the opportunity to increase the network alliances.

In contrast, some trends that could cause a negative impact and so should be managed as possible threats include:

1. To implement the program, local elders are needed. Securing the cooperation and support could be a challenge due to possible political or cultural boundaries that exist.
2. Resource restraints of participants, such as time, transportation, and money, could limit enrollment. Additionally, the *WING* program encourages participants to connect with nature. It could be difficult for participants to alter their mindsets about dependence on some modern conveniences, by growing some of their food, utilizing the medicinal and nutritional values of indigenous plants and incorporating walking or biking when possible.
3. The North Carolina Department of Public Instruction sees other education initiatives as a priority such as STEM (Science, Technology, Engineering, and Mathematics and/or Strategies That Engage Minds). Also, rapid advances in technology limit student's interaction with nature.

Since the *WING* program is under development, internal factors of the overall organization were analyzed. Some areas of strengths that will help promote the new program include:

1. The host organization has a large clientele enrolled in existing programs and activities. Utilizing their current participant lists, website, and Facebook connections to promote the *WING* program provides valuable advertising.
2. Educational leaders in the host organization have a strong vision of how to blend programs for youth and adults in order to connect multiple generations within the community.
3. This program will be unique in the region: there are no other programs of this nature that exist in the southeast.

Some areas of weaknesses that could present challenges in implementing the new program include:

1. The existing staff at the host organization is working to capacity, so there could be a lack of staff to support the development of increased program offerings.
2. The host organization is a non-profit organization whose Board of Directors has secured funds for their existing education offerings. Adding additional programs will require additional funds.
3. Occasional conflict in the use of the property occurs due to sharing with a public city park with recreational activities such as Frisbee golf.

Strategies Analysis:

Domination Strategy - In order to take advantage of the strengths existing within the host organization as well as the *WING* program and to capitalize on the opportunity of the diverse population of residents found in the Piedmont region of North Carolina, marketing material promoting the new and unique program will be distributed electronically. The host organization already has an extensive clientele list who regularly attends programs and activities as well as a strong website and Facebook account, and these can be utilized for publicity. Distributions to electronic mailing lists for local universities, employers, community and cultural centers will also be utilized. With minimal time and budget, an extensive number of people can be reached with promotional material for the *WING* program by existing personnel at the host organization.

Confrontation Strategy - In order to take advantage of the strengths existing within the host organization and to reduce the threat of program failure due to lack of support from community elders, relationships need to be built with members of community and cultural centers, such as Native American education centers, botanical gardens, natural history museums, and churches. Rather than having classes and activities only onsite at the host organization, the education team can schedule outreach programs with topics relevant to the diverse cultures found in the region. By reaching out to groups, it opens the door to communications that will establish relationships vital to the implementation of the *WING* program. But, the onsite classes and activities held at the host organization keep the education team busy, so developing additional programs and travelling to centers in the area will require a budgeting of time and additional personnel.

Mitigation Strategy - In order to capitalize on the opportunity of community support both locally as well as in states where similar programs of this nature exist and to overcome the lack of extra funds and staff to implement the *WING* program, a “kickstarter” project can be created. “Kickstarter” is a website where project designers market their idea and offer incentives in return for monetary pledges. The incentives increase as the pledge amount increases. Some ideas for incentives include the host organization bumper stickers, t-shirts, free classes, and enrollment in the *WING* program. With environmental education being a trend in the nation, a project like this should receive support. One or two staff or intern resources are needed to build the project with a video on “kickstarter”.

Minimization Strategy - In order to minimize the possible risks incurred from insufficient staff at the host organization to implement the *WING* program and the lack of support from local community elders it will be important to utilize any existing relationships with members of outside community and cultural centers. By inviting these members to participate as teachers and experts in current the host organization offerings it will provide additional resources to the staff. It will also strengthen the individual relationship and possibly promote new relationships as other members of culture gain knowledge and interest in the host organization. No additional funds are required by the host organization. The only requirement is securing commitment from community elders and integrating their classes into the offerings.

Table 2: SWOT Analysis

| EXTERNAL FACTORS | | |
|---|---|---|
| <p>Mission: To help students build a relationship with themselves, with their community, and ultimately with nature in order to connect multiple generations within the community to their natural surroundings and work together to leave the Earth and its resources better than they found it.</p> <p>INTERNAL FACTORS</p> | <p><u>Opportunities</u></p> <ol style="list-style-type: none"> 1. Diverse population in community 2. No Child Left Inside Act 3. Existing programs in other states | <p><u>Threats</u></p> <ol style="list-style-type: none"> 1. Lack of support from elders 2. Resource constraints and mindset of participants 3. Competing educational initiatives (STEM) |
| | <p><u>Strengths</u></p> <ol style="list-style-type: none"> 1. Existing clientele from comprehensive youth programs 2. Strong vision of education team 3. Unique program offering for the Southeast | <p><u>Domination Strategies</u></p> <ul style="list-style-type: none"> • Distribute marketing materials to client lists and through local universities, employers, and cultural/ community centers. • Develop an alliance between existing organizations with similar programs. • Garner political support in NC for No Child Left Inside Act utilizing alliances with existing organizations in states where congressmen support the act. |
| | <p><u>Weaknesses</u></p> <ol style="list-style-type: none"> 1. Insufficient staff for new program 2. Lack of funding for implementation 3. Conflict in property use | <p><u>Confrontation Strategies</u></p> <ul style="list-style-type: none"> • Hold community outreach programs at community and cultural centers to foster relationships. • Invite potential elders to participate in youth programs to initiate relationships. • Integrate STEM (Strategies That Engage Minds) attributes into environmental education programs. |
| | <p><u>Mitigation Strategies</u></p> <ul style="list-style-type: none"> • Develop a “kickstarter” project for pledges to cover costs of starting the program. • Secure grants for staff and program needs. • Solicit interns and volunteers through local universities, employers, and cultural/community centers. • Invite guest teachers from other programs. • Advertise new program to park visitors. | <p><u>Minimization Strategies</u></p> <ul style="list-style-type: none"> • Invite elders with whom there is an existing relationship with the host organization to assist in programs. • Offer scholarships to help subsidize the cost of the program. • Ensure new staff members are knowledgeable of STEM attributes. |

Action Plan:

Implementation of the *WING* program within the host organization requires a series of meetings and approvals followed by organizational changes and enrollment of participants. The Director of Education serves as the host organization staff member assisting in the implementation of the strategic plan, therefore initial approval and feedback will be derived from this staff person. The strategic plan must then receive approval from the Executive Director of the host organization before being presented to the Board of Directors for funding approval. With funding available, recommended organizational changes can be completed and new positions hired.

Also upon approval, the implementation of the program can begin through the education team. Commitments from elders within the community to participate in the program need to be secured. The curriculum for each course based on the *Eight Shields* model and the *Art of Mentoring* and incorporating the recommended best practices from this study need to be designed. Advertisement of the new program to solicit participant enrollment can start. Finally, management of the program can transition to the new Adult Education Director once the role is filled. The new director can initiate contact with the centers offering similar programs around the U.S. to develop network alliances. Refer to Figure 1 for a timeline of the action plan.

Figure 1: Timeline of Action Plan



Measuring and Adapting to Success:

Since the vision and mission of the *WING* program is to help students connect to nature and inspire long-term elder-mentor relationships within their communities, the main indicator of success must be monitoring the relationships formed during the program. Upon completion of the program, feedback from participants is collected using a reflection survey. This feedback will be used for immediate modifications to the training content for future programs. The elder-mentor relationships will be monitored by soliciting an annual survey to alumni of the program. Data about the relationship, if it is being maintained, and how the relationship benefits their community will be collected. This data will be used to measure the long-term success of the training and to modify the program for improvements. Additionally, continued enrollment in future levels of the *WING* program by alumni elders will be a gauge of success in promoting a regenerative approach to the interaction between people and nature through the experiential offerings at the host organization.

Works Cited for WING Strategic Plan:

Jon Young. (2013). *The web home of Jon Young, tracker, mentor, author*. Retrieved from Jon Young website <http://ionyoung.org/>

Wilderness Awareness School. (2013). *About wilderness awareness school*. Retrieved from Wilderness Awareness School website <http://wildernessawareness.org/>

Eight Shields Institute. (2013). *What is the 8 shields model?* Retrieved from Eight Shields Institute website <http://8shields.com/about/what-is-8shields/>

Wilderness Awareness School. (2012, July 23). "Learn wilderness survival in an exciting year outdoors - Anake Outdoor School." [YouTube]. Retrieved from <http://www.youtube.com/watch?v=B2xgdmUkLyY>

North Carolina Department of Administration. (2013). *Commission of indian affairs*. Retrieved from NC DOA website <http://www.doa.nc.gov/cia/tribes.aspx>

H.R. 2702--113th Congress: No child left inside act of 2013. (2013). In www.GovTrack.us. Retrieved September 28, 2013, from <http://www.govtrack.us/congress/bills/113/hr2702>

Dickinson, E. (2013). The misdiagnosis: rethinking "nature-deficit disorder". *Environmental Communications*. Retrieved from <http://www.unc.edu/~dickins/DickinsonTheMisdiagnosis.pdf>

Constantine, L.L. (1993). Work organization: paradigms for project management and organization. *Communications of the ACM*, 36(10), 35-43.

Waterman, R.H. et al. (1996). Organizational alignment: the 7-S model. *Harvard Business School Case Study*, #9-497-045. pgs. 1-11.